

Programmable Device Server

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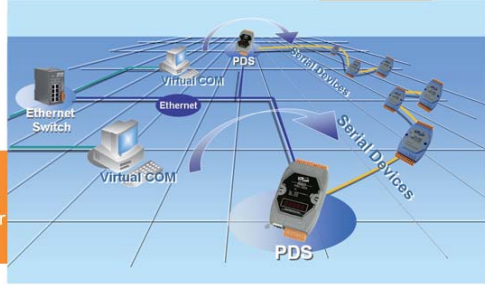


3.1. Overview

Serial Devices to Ethernet Gateway

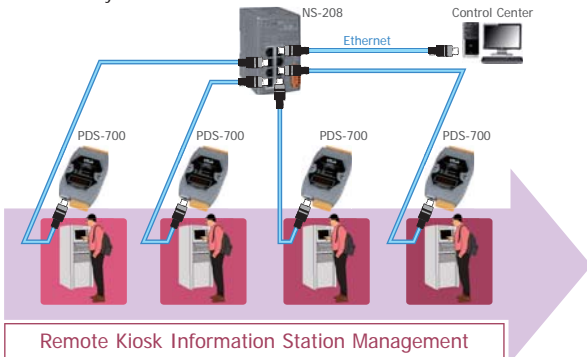


Take your serial devices to the modern world. Programmable Device Server



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

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"

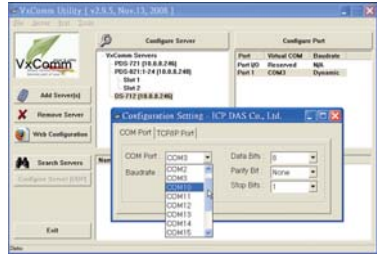
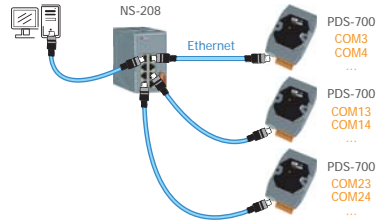
The most intuitive and easiest way to remotely control serial devices is to access those devices transparently via a network with no software modification required. The ICP DAS PDS product line offers two transparent applications:

◆ 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.

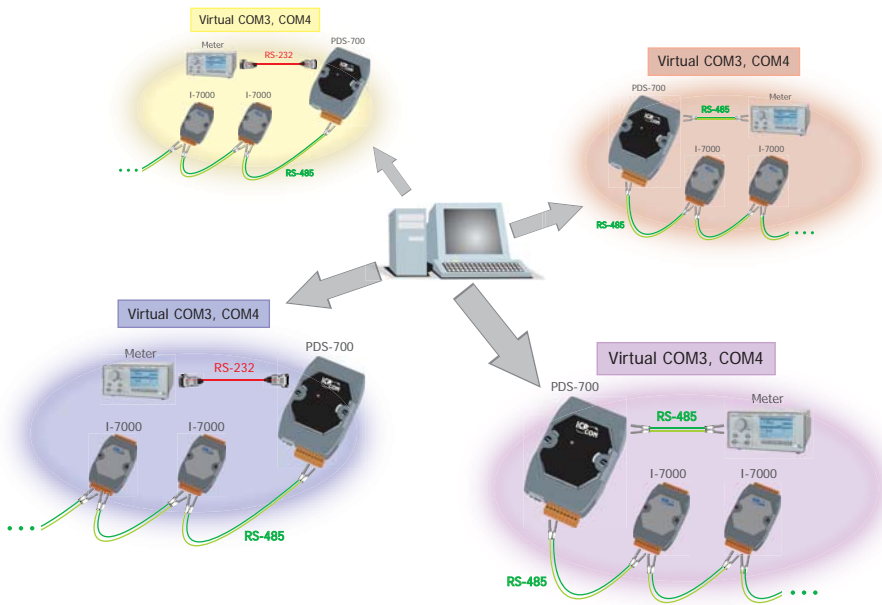
◆ Virtual COM Ports:

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

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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.

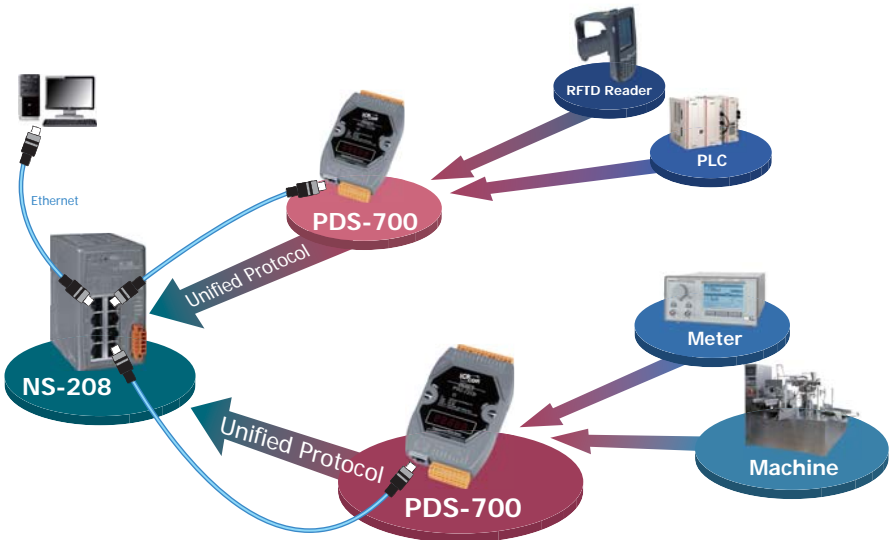
◆ Previous development efforts can be duplicated:

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

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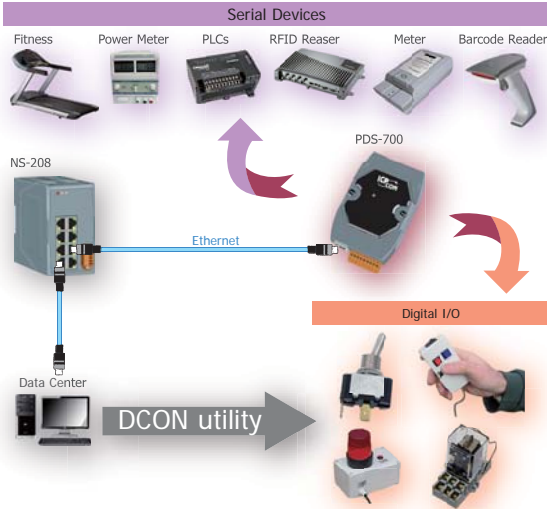


Virtual I/O Highly Integrates On-Site Messages

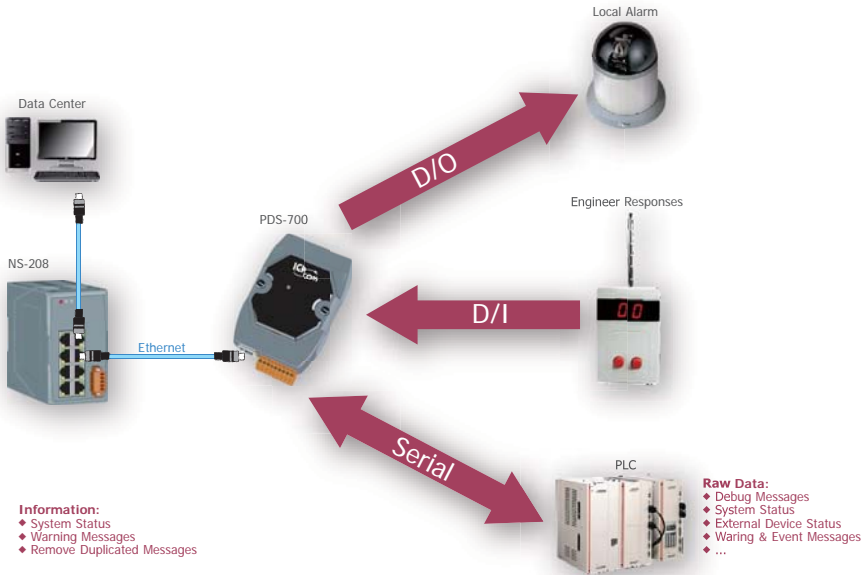
I/O acquisition is very important when performing on-site integration, so, along with DCON utility provided by ICP DAS, the RS-485 of PDS is able to be connected to I-7000 series products to offer abundant I/O modules for various purposes. For easier on-site integration operations, some PDS models also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

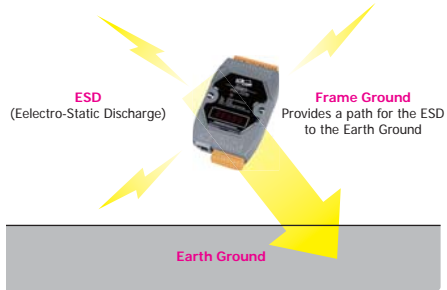
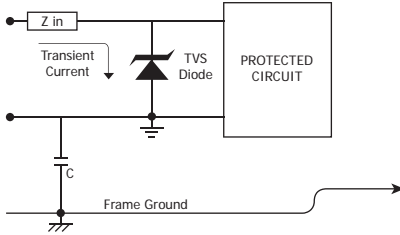


Programmable Data Monitor, Filter and I/O Controls



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.

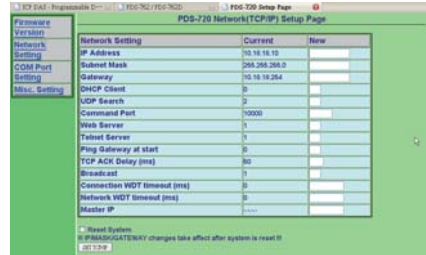
Self-Tuner Inside

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

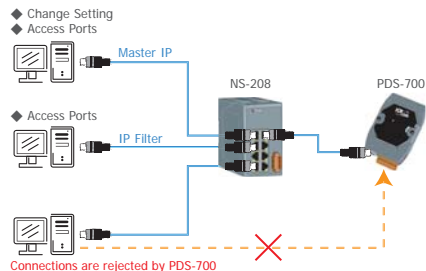
The PDS also contains a built-in web server that enables users to conveniently configure the PDS. A web browser, like IE or Firefox, can be used to connect to the PDS to modify the configuration, such as: IP address, subnet mask, gateway, DHCP client, UDP search, Web Server, Telnet Server, TCP ACK delay, 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.






● Selection Guide

Comparison Table of Device Server and Modbus Gateway

Features/Series	PPDS	PDS	DS	tDS	tGW
Virtual COM	Yes	Yes	Yes	Yes	-
Programmable	Yes	Yes	-	-	-
PoE	Yes	-	-	Yes	Yes
Modbus Gateway	Yes	-	-	-	Yes
Multi-client	Yes	Yes	Yes	-	-
Remarks	Professional	Powerful	Isolation for DS-715	Cost-effective, Entry-level	Cost-effective, Entry-level








PPDS Series – Programmable Device Server and Modbus Gateway with PoE

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



PDS Series – Programmable Device Server

Series	Ethernet	Virtual COM	Virtual I/O	Programmable	Modbus	Casing
 PDS-700	10/100 M	Yes	Yes	Yes	-	Fire Retardant Plastic
 PDSM-700						Metal
 PDS-8x1	10/100 M Ethernet Switch		-			-
 PDS-8x2	Dual 10/100 M Ethernet					
 PDS-220Fx	100 Base-FX, Fiber					



DS, tDS & tGW Series – Non-Programmable Device Server and Modbus Gateway

Series	Ethernet	Virtual COM	Virtual I/O	Multi-client	Modbus	Casing	Remarks
 DS-700	10/100 M	Yes	-	Yes	-	Fire Retardant Plastic	Isolation for DS-715
 tDS-700	10/100 M, PoE			-			-
 tGW-700		-		-			Yes

3.2. PDS(M)-700(D) & PPDS(M)-700(D)-MTCP Programmable Device Servers



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

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



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

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



PDS(M)-700(D) Series PPDS(M)-700(D)-MTCP Series

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

RS-232/RS-485

Features

- Incorporates serial devices in an Ethernet network
- Provides Virtual COM for 32- and 64-bit Windows XP/2003/Vista/7
- Supports Modbus TCP to RTU/ASCII Gateway (for MTCP versions)
- Powerful programmable device server with lib and sample programs
- Built-in high performance MiniOS7 from ICP DAS
- Built-in watchdog timer suitable for use in harsh environments
- Built-in Self-Tuner on RS-485 Ports (automatic direction control)
- Supports +/- 4 kV ESD protection on serial ports
- Power reverse polarity protection and low power consumption
- 10/100 Base-TX Ethernet, RJ-45 Port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
- Supports PoE (Power over Ethernet, for PPDS versions)
- Built-in 7-Segment 5-digit LED display (for D versions)
- Supports D/I, latched D/I and counter functions (for models with DIO)
- Supports Virtual I/O technology (for models with DIO)
- Supports IP filter for security control
- Supports multi-client and data sharing function
- Palm-size form factor with multiple serial ports and DIN-Rail mounting
- Made from fire retardant materials (UL94-V0 Level)
- RoHS compliant with no Halogen
- OEM/ODM service is available



Introduction

The PDS-700/PPDS-700-MTCP 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/PPDS-700-MTCP series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-700/PPDS-700-MTCP series is able to meet the demands of every network-enabled application.

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

These modules also provide advanced features like data sharing and UDP flood attack protection as follows:

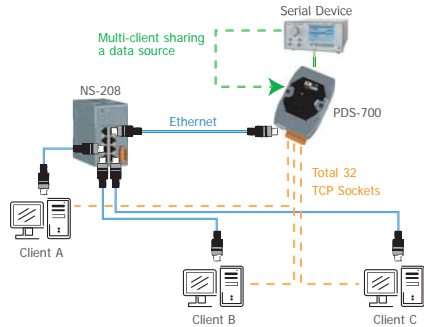
Data Sharing with Multiple Clients

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)

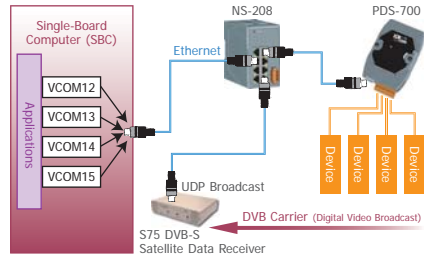
In slave mode, the PDS only sends data from a serial device to the client that requires the service. If there are no requirements from the client, then data will not be sent to the client. The PDS services each client individually when sharing data from the serial device, but the clients do not have 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.

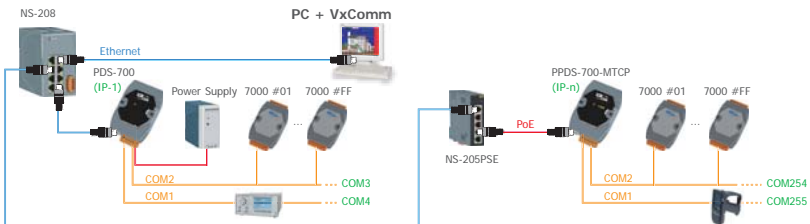


The PPDS-700-MTCP series features true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) using a standard category 5 Ethernet cable to receive power from a PoE switch like the NS-205PSE. The PPDS-700-MTCP also works as a Modbus/TCP to RTU/ASCII gateway that supports most SCADA/HMI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

The removable onboard terminal block connector is designed for easy and robust wiring in industrial situations.

Applications

Factory, Building and Home Automation



■ PDS(M)-700(D) & PPDS(M)-700(D)-MTCP Selection Guide

Model Name	RS-232	RS-485	RS-422/485	DI/DO	Ethernet	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8
PDS-720(D) PPDS-720(D)-MTCP	1	1	-	-	10/100 M	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-
PDS(M)-721(D) PPDS(M)-721(D)-MTCP	1	1	-	6/7	10/100 M	5-wire RS-232	2-wire RS-485	-	-	-	-	-	-
PDS(M)-732(D) PPDS(M)-732(D)-MTCP	2	1	-	4/4	10/100 M	5-wire RS-232	2-wire RS-485	5-wire RS-232	-	-	-	-	-
PDS(M)-734(D) PPDS(M)-734(D)-MTCP	1	1	1	4/4	10/100 M	5-wire RS-232	2-wire RS-485	RS-422/ RS-485	-	-	-	-	-
PDS(M)-742(D) PPDS(M)-742(D)-MTCP	3	1	-	-	10/100 M	5-wire RS-232	2-wire RS-485	5-wire RS-232	9-wire RS-232	-	-	-	-
PDS(M)-743(D) PPDS(M)-743(D)-MTCP	3	1	-	4/4	10/100 M	5-wire RS-232	2-wire RS-485	3-wire RS-232	3-wire RS-232	-	-	-	-
PDS(M)-752(D) PPDS(M)-752(D)-MTCP	4	1	-	-	10/100 M	5-wire RS-232	2-wire RS-485	5-wire RS-232	5-wire RS-232	5-wire RS-232	-	-	-
PDS(M)-755(D) PPDS(M)-755(D)-MTCP	1	4	-	-	10/100 M	5-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	2-wire RS-485	-	-	-
PDS(M)-762(D) PPDS(M)-762(D)-MTCP	5	1	-	1/2	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	-	-
PDS(M)-782(D) PPDS(M)-782(D)-MTCP	7	1	-	-	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
PDS-782(D)-25/D6	7	1	-	-	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

Note:

1. The D version modules have a built-in 7-Seg. LED Display.
2. The M version modules use metal case.
3. The PPDS-700-MTCP series modules support PoE (Power over Ethernet) and Modbus Gateway.

System Specifications

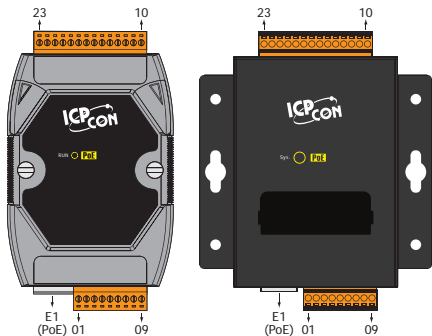
Models		PDS(M)-700(D) & PPDS(M)-700(D)-MTCP Series
CPU		
CPU		80186, 80 MHz or compatible
SRAM		512 KB
Flash Memory		Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles
EEPROM		16 KB; Data retention: 40 years; 1,000,000 erase/write cycles
Built-in Watchdog Timer		Yes
Communication Interface		
Ethernet		10/100 Base-TX, RJ-45 port (Auto-negotiating, auto MDI/MDI-X, LED indicator)
PoE		IEEE 802.3af (PPDS(M)-700(D)-MTCP series only)
COM Port Formats		
Data Bit	COM1 and COM2	7, 8
	COM3 – COM8	5, 6, 7, 8
Parity		None, Even, Odd, Mark, Space
Stop Bit	COM1 – COM8	1, 2
Baud Rate		115200 bps max.
LED Indicators		
5-digit 7 Segment		Yes (D versions only)
System		Red
PoE		Green (PPDS(M)-700(D)-MTCP series only)
Power		
Protection		Power Reverse Polarity Protection
Required Supply Voltage	PDS(M)-700(D) Series	+10 V _{DC} – +30 V _{DC} (non-regulated)
	PPDS(M)-700(D)-MTCP Series	PoE or +12 V _{DC} – +48 V _{DC} (non-regulated)
Power Consumption	D versions (LED display)	2.9 W
	Others	2.2 W
Mechanical		
Flammability	M versions (Metal case)	Metal Fire Retardant Materials (UL94-V0 Level)
	Others	Plastic Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	M versions (Metal case)	88 mm x 123 mm x 28 mm
	Others	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 – 90% RH, non-condensing

I/O Specifications

Models		PDS(M)-700(D) & PPDS(M)-700(D)-MTCP Series
Digital Output		
Output Type		Open Collector (Sink/NPN)
Load Voltage		30 V _{DC} , max.
Load Current		100 mA, max.
Isolated Voltage		Non-isolated
Digital Input		
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	Max. Count	16-bit (65535)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms

Pin Assignments

PDS(M)-700(D) & PPDS(M)-700(D)-MTCP Series



Terminal No.	Pin Assignment
E1	Link/Act
	10/100M
COM1	01 CTS1
	02 RTS1
	03 RxD1
COM2	04 TxD1
	05 INIT*
COM3	06 D2+
	07 D2-
	08 (R)+Vs
09	(B)GND

PDS(M)-721(D) & PPDS(M)-721(D)-MTCP

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

PDS(M)-732(D) & PPDS(M)-732(D)-MTCP

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
	13 RxD3
COM3	12 TxD3
	11 RTS3
	10 CTS3

PDS(M)-734(D) & PPDS(M)-734(D)-MTCP

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
	13 RxD3-
COM3	12 RxD3+
	11 TxD3-/D3-
	10 TxD3+/D3+

PDS(M)-742(D) & PPDS(M)-742(D)-MTCP

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

PDS(M)-743(D) & PPDS(M)-743(D)-MTCP

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
	13 TxD3
COM3	12 RxD3
	11 TxD4
COM4	10 RxD4

PDS(M)-752(D) & PPDS(M)-752(D)-MTCP

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

PDS(M)-755(D) & PPDS(M)-755(D)-MTCP

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

PDS(M)-762(D) & PPDS(M)-762(D)-MTCP

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

PDS(M)-782(D) & PPDS(M)-782(D)-MTCP

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

PDS-782(D)-25/D6

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.

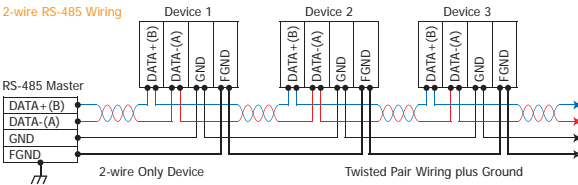
25-Pin Male D-Sub Connector

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

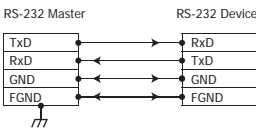
RS-232 Female DB-25 to Male DB-9 Connector

Wiring

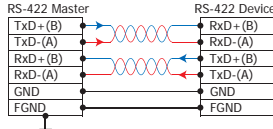
2-wire RS-485 Wiring



3-wire RS-232 Wiring



4-wire RS-422 Wiring



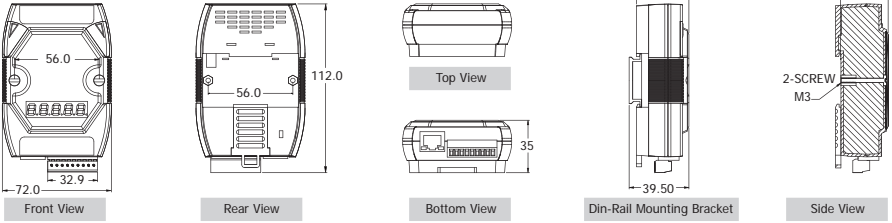
Output Type	DO Command as 1	DO Command as 0
Drive Relay	Relay ON 	Relay Off
	Resistance Load 	Resistance Load

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON 	Relay Off
	Voltage < 1V Logic Level Low Logic GND	Voltage > 3.5V Logic Level High Logic GND
Open Collector	Open Collector On 	Open Collector Off

3

Dimensions (Unit: mm)

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

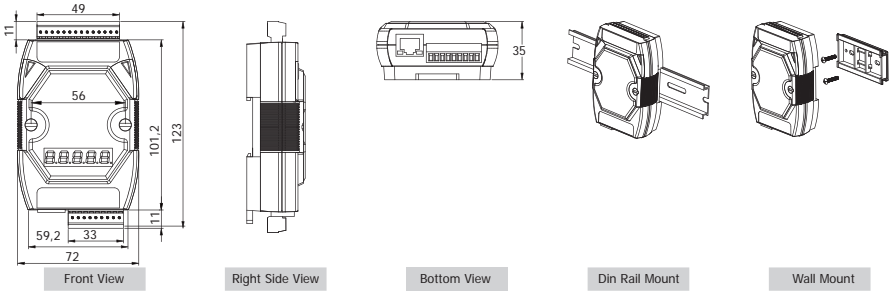


PDS-721(D) & PPDS-721(D)-MTCP
 PDS-732(D) & PPDS-732(D)-MTCP
 PDS-734(D) & PPDS-734(D)-MTCP
 PDS-742(D) & PPDS-742(D)-MTCP
 PDS-743(D) & PPDS-743(D)-MTCP

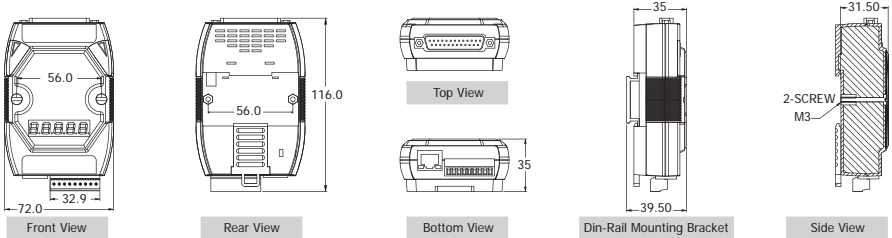
PDS-752(D) & PPDS-752(D)-MTCP
 PDS-755(D) & PPDS-755(D)-MTCP
 PDS-762(D) & PPDS-762(D)-MTCP
 PDS-782(D) & PPDS-782(D)-MTCP

Programmable Device Servers (Serial-to-Ethernet)

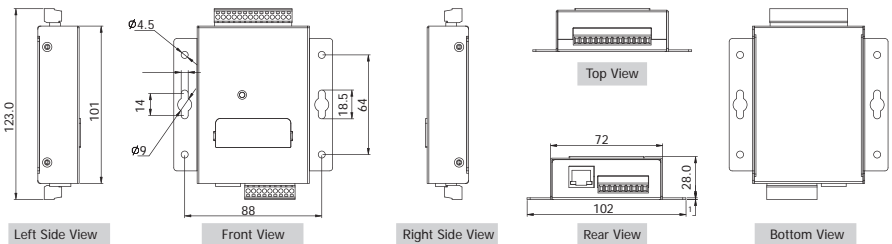
2



PDS-782(D)-25/D6



PDSM-700(D) & PPDSM-700(D)-MTCP Series



PDS(M)-700(D) & PPDS(M)-700(D)-MTCP Series

Ordering Information

Models							RS-232 RS-485 RS-422/485	DI/DO	Includes Cable
PDS	M	- 7		D	CR				
P	PDS	M	- 7	D	- MTCP	CR			
PoE	Programmable Device Server	Metal		LED Display	Modbus/TCP	RoHS			
	PDS	M	- 7 2 0	D		CR	1 RS-232 1 RS-485	-	1 CA-0910
	PPDS	M	- 7 2 0	D	-MTCP	CR			
	PDS	M	-721	D		CR	1 RS-232 1 RS-485	6/7	1 CA-0910
	PPDS	M	-721	D	-MTCP	CR			
	PDS	M	-732	D		CR	2 RS-232 1 RS-485	4/4	1 CA-0910
	PPDS	M	-732	D	-MTCP	CR			
	PDS	M	-734	D		CR	1 RS-232 1 RS-485 1 RS-422/485	4/4	1 CA-0910
	PPDS	M	-734	D	-MTCP	CR			
	PDS	M	-742	D		CR	3 RS-232 1 RS-485	-	1 CA-0910
	PPDS	M	-742	D	-MTCP	CR			
	PDS	M	-743	D		CR	3 RS-232 1 RS-485	4/4	1 CA-0910
	PPDS	M	-743	D	-MTCP	CR			
	PDS	M	-752	D		CR	4 RS-232 1 RS-485	-	1 CA-0910
	PPDS	M	-752	D	-MTCP	CR			
	PDS	M	-755	D		CR	1 RS-232 4 RS-485	-	1 CA-0910
	PPDS	M	-755	D	-MTCP	CR			
	PDS	M	-762	D		CR	5 RS-232 1 RS-485	1/2	1 CA-0910
	PPDS	M	-762	D	-MTCP	CR			
	PDS	M	-782	D		CR	7 RS-232 1 RS-485	-	1 CA-0910
	PPDS	M	-782	D	-MTCP	CR			
	PDS	M	-7 8 2	D	-25/D6	CR	7 RS-232 1 RS-485	-	1 CA-0910 1 CA-9-2505D

Note:
 1. PPDS(M)-700(D)-MTCP supports PoE and Modbus Gateway.
 2. D versions support 7-segment 5-digit LED display.
 3. M versions is equipped with metal case.

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
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)
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)

3.3. DS-700 Serial-to Ethernet Device Servers



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



Introduction

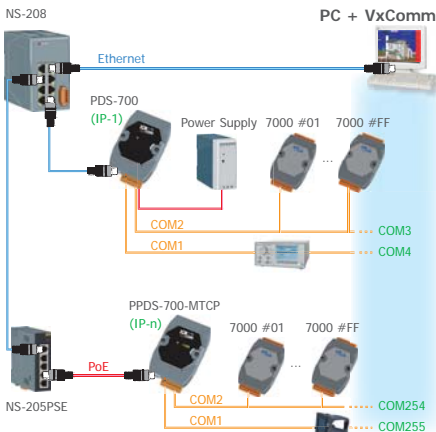
The DS-700 is a series of Serial-to-Ethernet Device Servers that are designed for linking RS-232/422/485 devices to an Ethernet network. By using the VxComm Driver/Utility, the built-in COM port of the DS-700 series can be virtualized to a standard PC COM port in Windows. By virtue of its protocol independence,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

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 (Tx/D, Rx/D, 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	
Parity	None, Even, Odd, Mark, Space	
Stop Bit	1, 2	
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 Vdc ~ +48 Vdc (non-regulated)	PoE or +12 Vdc ~ +48 Vdc (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	

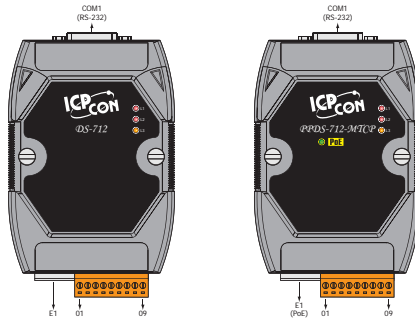


Applications

Factory, Building and Home Automation

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

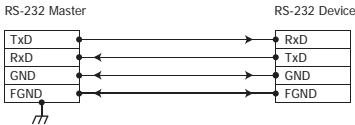


Pin Assignment	Terminal No.	Pin Assignment
GND	05	09 --
--	04	08 CTS
TxD	03	07 RTS
RxD	02	06 --
--	01	

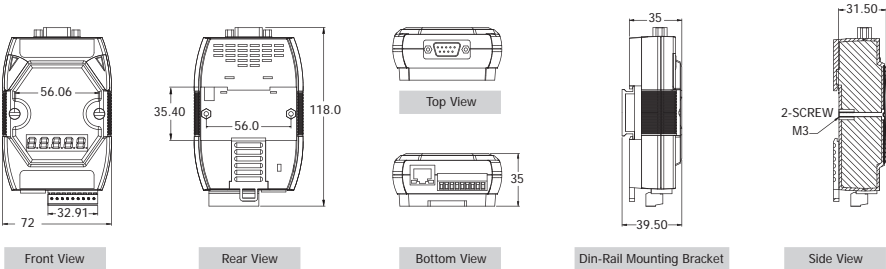
COM1: Male DB-9 Connector

Wiring

3-wire RS-232 Wiring



Dimensions (Unit: mm)



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 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
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)

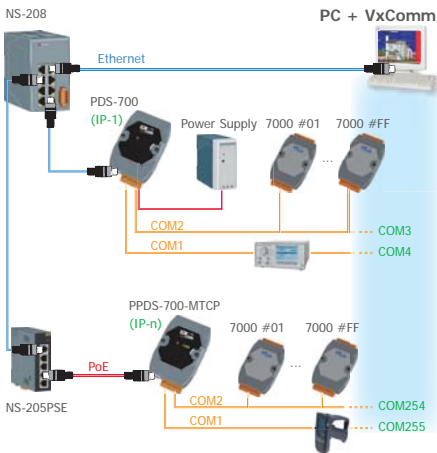


Introduction

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

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)

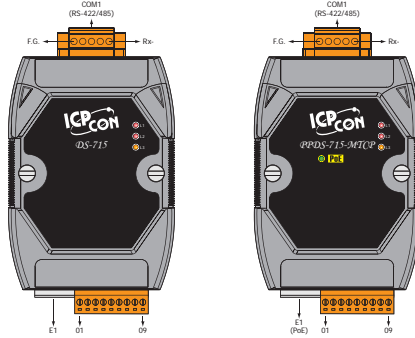


System Specifications

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	
Parity	None, Even, Odd, Mark, Space	
Stop Bit	1, 2	
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 Vdc ~ +48 Vdc (non-regulated)	PoE or +12 Vdc ~ +48 Vdc (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

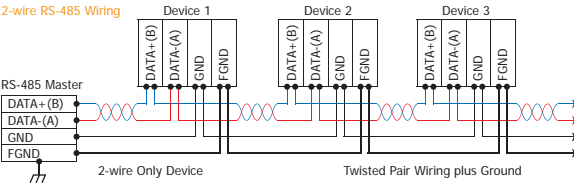
Terminal No.	Pin Assignment
E1	
01	N/A
02	N/A
03	N/A
04	N/A
05	INIT*
06	N/A
07	N/A
08	(R)+Vs
09	(B)GND



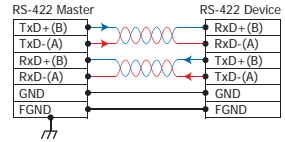
COM1 (RS-422/485)
F.G.
Tx+/D+
Tx-/D-
Rx+
Rx-

Wiring

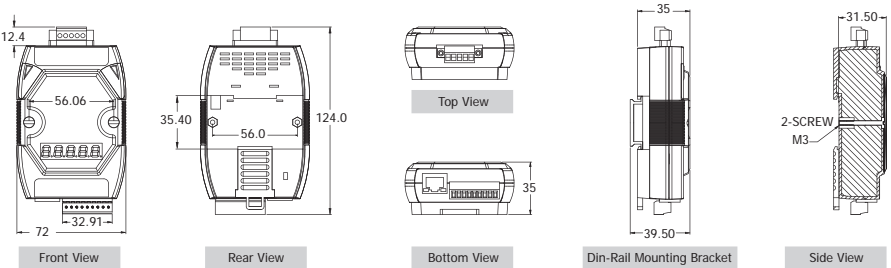
2-wire RS-485 Wiring



4-wire RS-422 Wiring



Dimensions (Unit: mm)



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 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)

3.4. 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



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-MTCC, 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

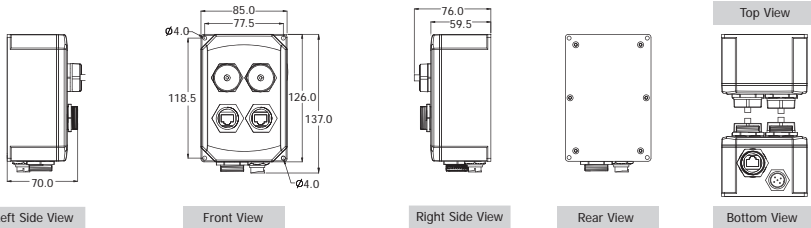


Specifications

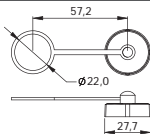
Models	PPDS-741-IP67(DIN)	PPDS-742-IP67(DIN)	PPDS-743-IP67(DIN)
CPU			
CPU	80186, 80MHz or compatible		
SRAM	512 KB		
Flash Memory	Flash ROM: 512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles		
EEPROM	16 KB; Data retention: 40 years; 1,000,000 erase/write cycles		
Watchdog Timer	Yes		
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)		
COM1 - COM4	Green: Rx/D Orange: Tx/D		
Power			
Protection	Power input reverse polarity protection		
Required Supply Voltage	+12 V _{DC} ~ +48 V _{DC} (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: Tx/D, Rx/D, CTS, RTS, GND Isolated 2-wire RS-485: DATA+, DATA-, GND; Self-tuner Inside; 2500 V _{ins} Isolation			

Dimensions (Unit: mm)

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

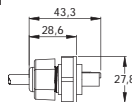


IP67 Ethernet Cap with Tether



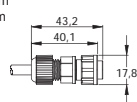
IP67 Ethernet Plug

Cable Dia:
Max. 7.0 mm
Min. 5.5 mm

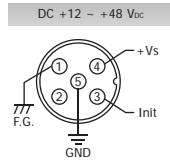
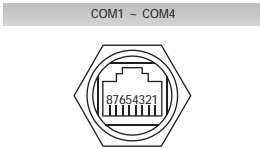
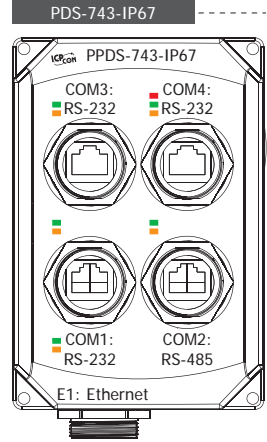
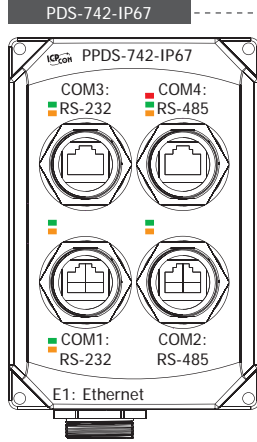
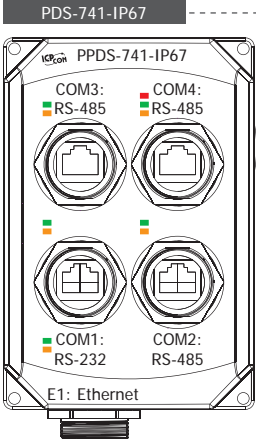


IP67 PWR Plug

Cable Dia:
Max. 6.5 mm
Min. 5.0 mm



Pin Assignments



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

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	--	--

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

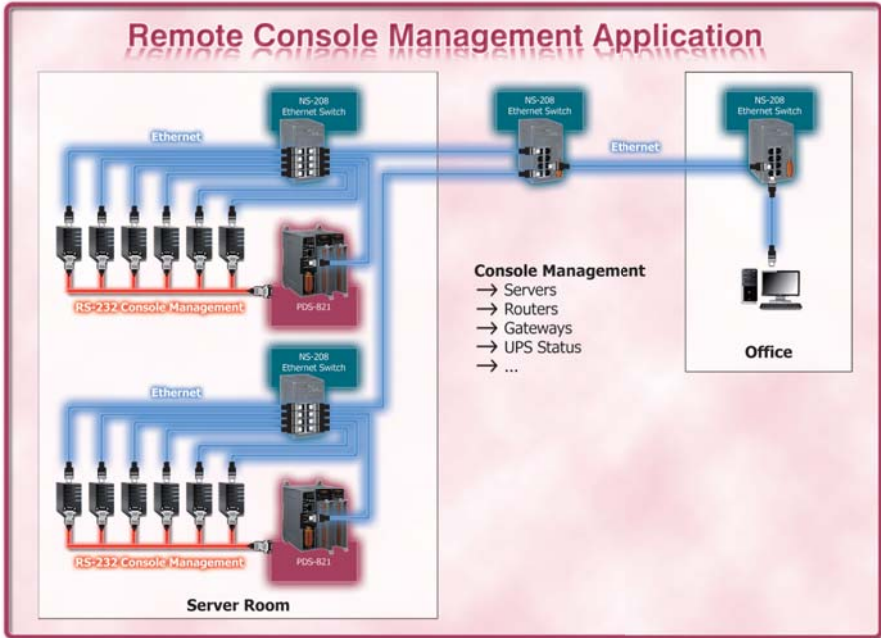
Ordering Information

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)
NS-205 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 PDS-800 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	3-5-2
PDS-821	2	80186, 80 MHz	512 KB/ 512 KB	2-port Ethernet Switch	MiniOS7	3-wire RS-232	8	3-5-2
PDS-842	4	PXA270, 520 MHz	64 MB/ 64 MB	Dual 10/100 M Ethernet	Linux	DB-9 RS-232	16	3-5-4
PDS-882	8	PXA270, 520 MHz	64 MB/ 64 MB	Dual 10/100 M Ethernet	Linux	DB-9 RS-232	32	3-5-4

Optional Serial Modules

Model Name	Interface	Ports	FIFO	Isolation	Self-Tuner	Connector	Page
I-8112W	9-wire RS-232	2	128 Bytes	2500 V _{rms}	-	DB-9	3-5-6
I-8114W	9-wire RS-232	4	128 Bytes	-	-	DB-37	3-5-8
I-8114IW	5-wire RS-232	4	128 Bytes	2500 V _{rms}	-	DB-37	3-5-8
I-8142W	4-wire RS-422 2-wire RS-485	2	128 Bytes	2500 V _{rms}	Yes	Terminal Block	3-5-10
I-8144IW	4-wire RS-422 2-wire RS-485	4	128 Bytes	2500 V _{rms}	Yes	Terminal Block	3-5-10

NEW


PDS-811/PDS-821

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

Introduction

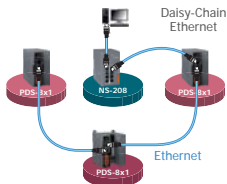
The PDS-811 and PDS-821 programmable device servers (PDS) are compact, modular, intelligent, rugged, and are designed for networking RS-232 and RS-422/485 serial devices to an Ethernet network. The PDS-811 has one I/O expansion slot, while PDS-821 has two I/O expansion slots that can be used to attach 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

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 Tx/D/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)

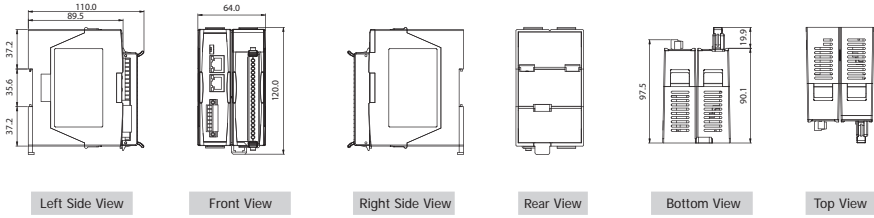


System Specifications

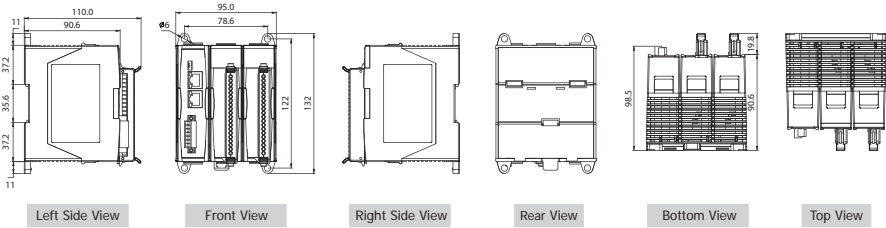
Models	PDS-811	PDS-821
CPU		
CPU	80186, 80 MHz or compatible	
SRAM	512 KB	
Flash Memory	512 KB	
EEPROM	16 KB	
NVRAM	-	
RTC (Real Time Clock)	-	
64-bit Hardware Serial Number	-	
Built-in Watchdog Timer	Yes	
I/O Expansion Slots	1 Slot	2 Slots
Communication Interface		
COM1 (Console)	RS-232 (Tx/D, Rx/D, 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 _{cc} ~ +30 V _{cc} (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)

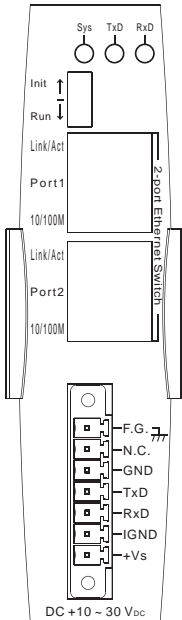
PDS-811



PDS-821



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 V _{dc} /1 A, 24 W Power Supply with DIN-Rail Mounting
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)



PDS-842/PDS-882

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

Introduction

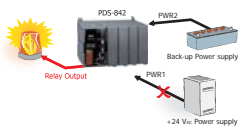
The PDS-842 and PDS-882 programmable device servers (PDS) are compact, modular, intelligent, rugged, and are designed for networking RS-232/422/485 serial devices to an Ethernet network. The PDS-842 has 4 I/O expansion slots, while the PDS-882 has 8 I/O expansion slots that can be used to attach various 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

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)

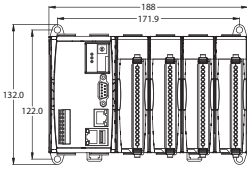


System Specifications

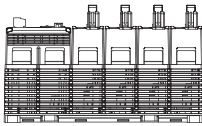
Models	PDS-842	PDS-882
CPU	PXA270 or compatible (32-bit and 520 MHz)	
SDRAM	64 MB	
Flash Memory	64 MB	
EEPROM	16 KB	
NVRAM	-	
RTC (Real Time Clock)	No	
64-bit Hardware Serial Number	Yes	
Built-in Watchdog Timer	Yes	
I/O Expansion Slots	4 Slots	8 Slots
Programmable LED Indicator	1	
Communication Interface		
COM1 (Console)	RS-232	
COM2	RS-485 (D+, D-); 3000 V _{DC} 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 V _{DC} ~ +48 V _{DC}	
Power Consumption	8.4 W (0.35 A @ 24 V _{DC})	9.1 W (0.38 A @ 24 V _{DC})
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)

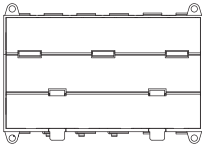
PDS-842



Front View

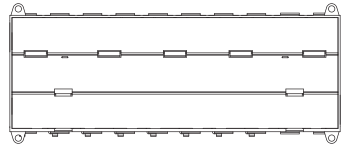
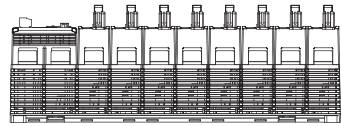
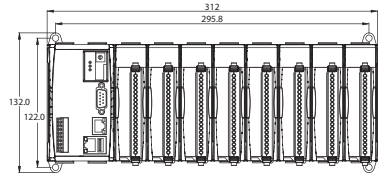


Bottom View



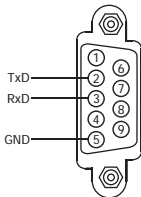
Rear View

PDS-882

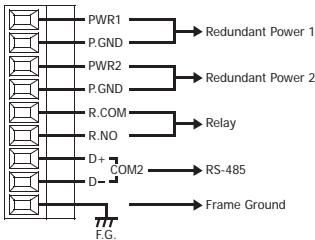


Pin Assignments

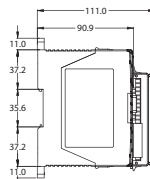
COM1: RS-232



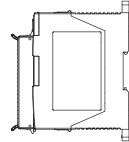
Terminal Block



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 V _{DC} /1.04 A, 25 W Power Supply
DIN-KA52F	24 V _{DC} /1.04 A, 25 W Power Supply with Din-Rail Mounting
MDR-60-24	24 V _{DC} /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)



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 the harsh industrial environment, the onboard ESD protection devices can divert this potentially damaging charge away from sensitive circuitry and protect the I-8112iW 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.

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 _{ms}
ESD Protection	+/-4 kV (Contact for each channel)

Software

Software
Supports interrupt driven software library
Supports VxCOM library

RS-232 Interface

Features

- High-profile Module
- 2500 V_{ms} 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 Tx/D and Power Status
- RoHS Compliant with no Halogen
- Low power consumption
- Made from fire retardant materials (UL94-V0 Level)



Applications

- Factory Automation
- Building Automation
- Home Automation

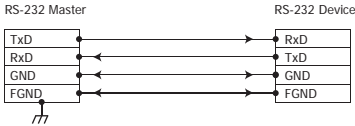
System Specifications

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	-30 °C ~ +80 °C
Humidity	10 ~ 95% RH, non-condensing

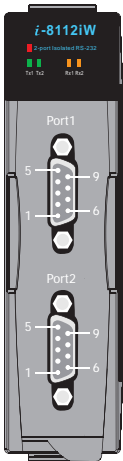
Wiring

DTE Device (Computer)			DB9		DTE to DCE Connections		DCE Device (Modem)		DB9	
Pin#	DB9	RS-232 Signal Names	Signal Direction				Pin#	DB9	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 DB9 Metal-Shield			FGND	←	→	←	Soldered to DB9 Metal-Shield		FGND	

3-wire RS-232 Wiring



Pin Assignments



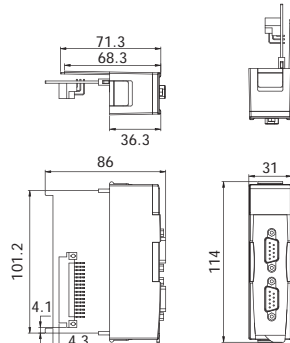
Pin Assignment	Terminal	No.	Pin Assignment
GND1	05	09	RI1
DTR1	04	08	CTS1
TxD1	03	07	RTS1
RxD1	02	06	DSR1
DCD1	01		

Port1 9-Pin Male D-Sub Connector

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

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
---------	--------------------------------------



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 the harsh industrial environment, the onboard ESD protection devices can divert this potentially damaging charge away from sensitive circuitry and protect the I-8114W/I-8114iW 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.

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 _{ms}
ESD Protection	+/-4 kV (Contact for each channel)	

Software

Software
Supports interrupt driven software library
Supports VxCOM library

RS-232 Interface

Features

- High-profile Module
- 2500 V_{ms} 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)



Applications

- Factory Automation
- Building Automation
- Home Automation

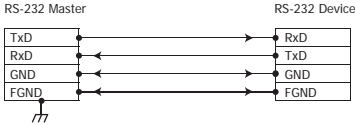
System Specifications

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	-30 °C ~ +80 °C	
Humidity	10 ~ 95% RH, non-condensing	

Wiring

DTE Device (Computer)		DB9	DTE to DCE Connections		DCE Device (Modem)		DB9
Pin#	DB9	RS-232 Signal Names	Signal Direction		Pin#	DB9	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 DB9 Metal-Shield		FGND	←	→	Soldered to DB9 Metal-Shield		FGND

3-wire RS-232 Wiring



Pin Assignments

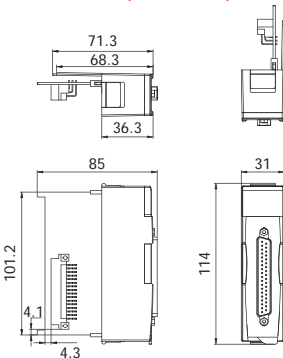
Pin Assignment	Terminal No.	Terminal No.	Pin Assignment
N.C.	01	20	RI3
DCD3	02	21	DTR3
GND	03	22	DSR3
CTS3	04	23	RTS3
RxD3	05	24	TxD3
RI4	06	25	DCD4
DTR4	07	26	GND
DSR4	08	27	CTS4
RTS4	09	28	RxD4
TxD4	10	29	RI2
DCD2	11	30	DTR2
GND	12	31	DSR2
CTS2	13	32	RTS2
RxD2	14	33	TxD2
RI1	15	34	DCD1
DTR1	16	35	GND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

37-Pin Female D-Sub Connector

Pin Assignment	Terminal No.	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 0.3 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

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 the harsh industrial environment, the onboard ESD protection devices can divert this potentially damaging charge away from sensitive circuitry and protect the I-8142iW/I-8144iW 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.

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 _{ms}	
ESD Protection	+/-4 kV (Contact for each channel)	

RS-422/485 Interface

Features

- High-profile Module
- 2500 V_{ms} 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 Tx/D 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)



Applications

- Factory Automation
- Building Automation
- Home Automation

System Specifications

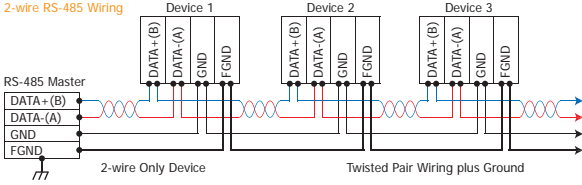
Models	I-8142iW	I-8144iW
LED Indicators		
Power	1 LED	
TxD	2 LEDs	4 LEDs
RxD	2 LEDs	4 LEDs
Power		
Power Consumption	1.5 W (Without Resistor)	1.75 W (Without Resistor)
	2 W (With 2 Resistors, 1/4 Watt, 120 Ω 5%)	3 W (With 4 Resistors, 1/4 Watt, 120 Ω 5%)
Mechanical		
Dimensions (W x L x H)	30 mm x 102 mm x 115 mm	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +80 °C	
Humidity	10 ~ 95% RH, non-condensing	

Software

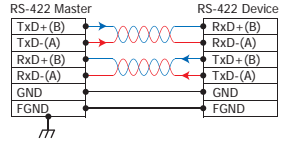
Software
Supports interrupt driven software library
Supports VxCOM library

Wiring

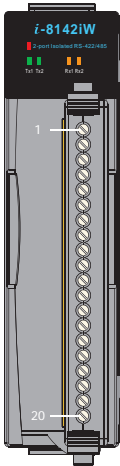
2-wire RS-485 Wiring



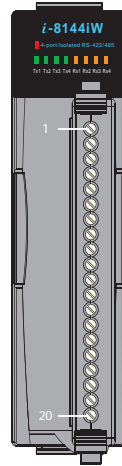
4-wire RS-422 Wiring



Pin Assignments

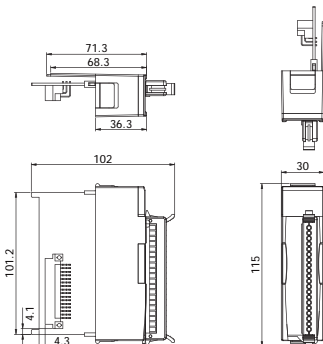


Terminal No.	Pin Assignment
01	D1+/TxD1+
02	D1-/TxD1-
03	RxD1+
04	RxD1-
05	GND1
06	D2+/TxD2+
07	D2-/TxD2-
08	RxD2+
09	RxD2-
10	GND2
11	N.C.
12	N.C.
13	N.C.
14	N.C.
15	N.C.
16	N.C.
17	N.C.
18	N.C.
19	N.C.
20	N.C.



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)

3.6. Programmable Serial-to-Fiber Device Server



PDS-220Fx

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

Features

- Adds optical fiber connectivity to serial devices
- "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
- RoHS compliant with no halogen
- Built-in high performance MiniOS7 from ICP DAS
- 100 Base-FX (SC/ST connectors)
- ODM service is available
- Low power consumption
- Made from fire retardant materials (UL94-V0 level)



Introduction

The PDS-220Fx series is a family of Programmable Device Servers, also known as "Serial-to-Fiber gateway", that are designed for adding optical fiber connectivity to RS-232/422/485 devices.

The fiber-optic communications permits transmission over longer distances than other forms of communications because of the signals travel along them with less loss and no crosstalk. It has following important features:

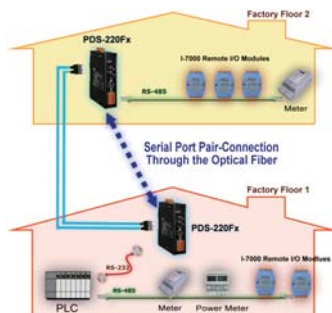
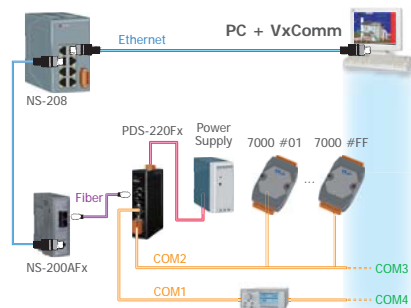
- Immunity to electromagnetic interference (EMI) — Motors, relays, welders and other industrial equipment generate a tremendous amount of electrical noise that can cause major problems with copper cabling.
- High electrical resistance, making it safe to use near high-voltage equipment or between areas with different earth potentials.
- No sparks — important in flammable or explosive gas environments.
- Not electromagnetically radiating, and difficult to tap without disrupting the signal — important in high-security environments.

Because of these reasons, optical fibers have largely replaced copper wire communications in core networks in the developed world.

The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-220Fx series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS-220Fx series is able to meet the demands of every network-enabled application.

The PDS-220Fx 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-220Fx up in just one second and gives you fastest responses.

The PDS-220Fx is equipped with 1 RS-232 port and 1 RS-422/485 port. The removable onboard terminal block connector is designed for easy and robust wiring in industrial situations.



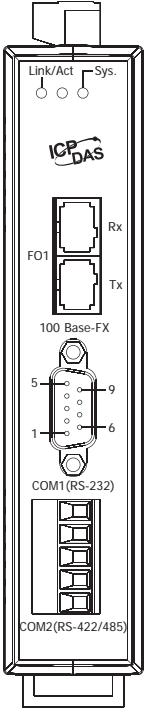
Applications

Factory, Building and Home Automation

System Specifications

Models	PDS-220FT	PDS-220FC	PDS-220FCS	PDS-220FCS-60	
CPU					
CPU	80186, 80 MHz or compatible				
SRAM	512 KB				
Flash	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				
Init Pin	Yes				
Communication Interface					
COM1	Male DB-9, 5-wire RS-232 (Rx, Tx, CTS, RTS, GND); Note: +/- 4 kV ESD Protection				
COM2	Removable Terminal Block 2-wire RS-485 (D+, D-, GND) with Self-tuner ASIC or 4-wire RS-422 (Tx+, Tx-, Rx+, Rx-, GND) Note: +/- 4 kV ESD Protection				
Fiber Port	100 Base-FX, ST connector	100 Base-FX, SC connector			
					
Mode	Fiber Cables	Multi-mode: 50/125, 62.5/125 or 100/140 μm		Single mode: 8.3/125, 8.7/125, 9/125 or 10/125 μm	
	Wavelength	1300 or 1310nm			
	Min. TX Output	- 20 dBm		- 15 dBm	- 5 dBm
	Max. TX Output	-14 dBm		- 8 dBm	0 dBm
	Max. RX Sensitivity	-32 dBm		- 34 dBm	- 35 dBm
	Max. RX Overload	-8 dBm		- 5 dBm	
Budget	12 dBm		19 dBm	30 dBm	
Distance	2 km, (62.5/125 μm recommended) for full duplex		30 km, (9/125 μm recommended) for full duplex	60 km, (9/125 μm recommended) for full duplex	
COM Port Formats					
UART	16c550 or compatible				
Data Bit	7, 8				
Parity	None, Even, Odd, Mark, Space				
Stop Bit	1, 2				
Baud Rate	115200 bps max.				
LED Indicators					
Link/Act	Green				
System	Red				
Power					
Power Input	+12 V _{DC} ~ +48 V _{DC} (non-regulated)				
Power Consumption	0.14 A @ 24 V _{DC}				
Protection	Power Reverse Polarity Protection				
Frame GND	Yes, for EMS Protection				
Mechanical					
Flammability	Fire Retardant Materials (UL94-V0 Level)				
Dimensions (W x L x H)	31 mm x 121 mm x 157 mm		31 mm x 123 mm x 157 mm		
Installation	DIN-Rail				
Environment					
Operating Temperature	-25 °C ~ +75 °C				
Storage Temperature	-30 °C ~ +85 °C				
Humidity	10 ~ 90% RH, non-condensing				

Pin Assignments

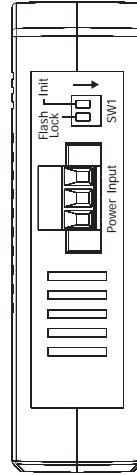


Pin Assignment	Terminal No.	Terminal No.	Pin Assignment
GND	05	09	--
--	04	08	CTS
TxD	03	07	RTS
RxD	02	06	--
--	01		

COM1: Male DB-9 Connector

Terminal No.	Pin Assignment
01	TxD+/D+
02	TxD-/D-
03	RxD+
04	RxD-
05	GND

COM2: Removable Terminal Block

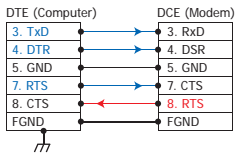


Terminal No.	Pin Assignment
03	PWR
02	P.GND
01	F.G.

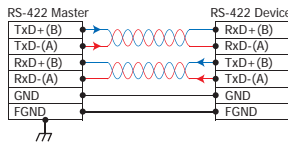
Power Input: Removable Terminal Block

Wiring

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



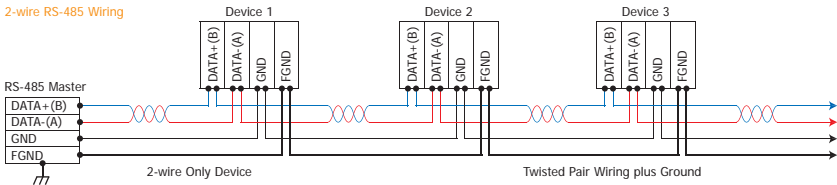
4-wire RS-422 Wiring



Fiber Optic Wiring

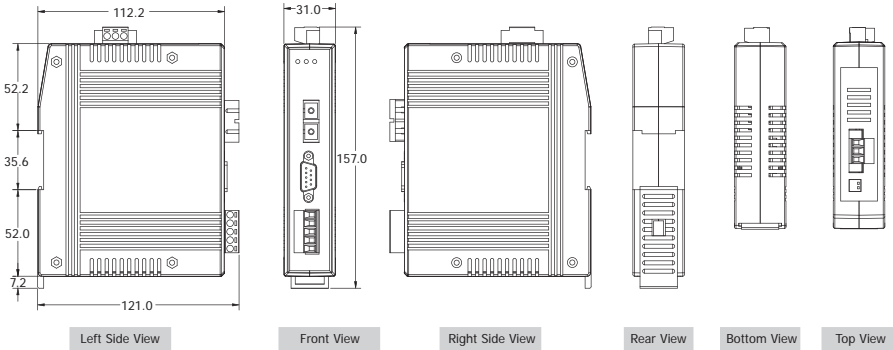


2-wire RS-485 Wiring

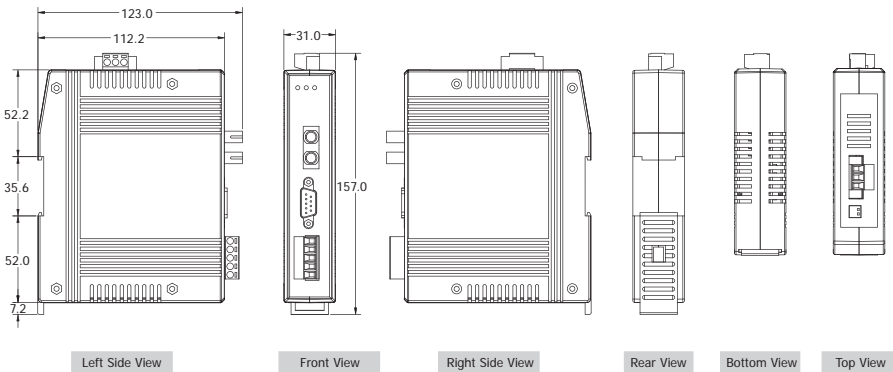


Dimensions (Unit: mm)

PDS-220FT



PDS-220FC/FCS/FCS-60



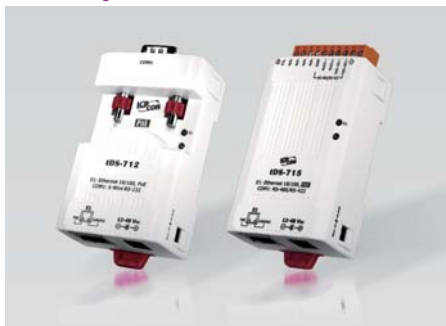
Ordering Information

PDS-220FT CR	Programmable Device Server with 1 RS-232, 1 RS-422/485 and 1 Multi-mode ST Fiber Ports (RoHS)
PDS-220FC CR	Programmable Device Server with 1 RS-232, 1 RS-422/485 and 1 Multi-mode SC Fiber Ports (RoHS)
PDS-220FCS CR	Programmable Device Server with 1 RS-232, 1 RS-422/485 and 1 Single-mode SC Fiber Ports (RoHS)
PDS-220FCS-60 CR	Programmable Device Server with 1 RS-232, 1 RS-422/485 and 1 Single-mode SC Fiber Ports (RoHS)

Accessories

GPSU06U-6 CR	24 V _{DC} /0.25 A, 6 W Power Supply
MDR-20-24 CR	24 V _{DC} /1 A, 24 W Power Supply with DIN-Rail
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-200AFT CR	Industrial 10/100 Base-T to 100 Base-FX Media Converter; 1 multi-mode ST connector (RoHS)
NS-200AFC CR	Industrial 10/100 Base-T to 100 Base-FX Media Converter; 1 multi-mode SC connector (RoHS)
NS-200AFCS CR	Industrial 10/100 Base-T to 100 Base-FX Media Converter; 1 single mode SC connector (RoHS)
NS-200AFCS-40T CR	Industrial 10/100 Base-T to 100 Base-FX Media Converter; 1 (40km) single mode SC connector (RoHS)
NS-205 CR	Unmanaged 5-Port Industrial Ethernet Switch (RoHS)
DIN-KA52F-48 CR	48V/0.52A, 25 W Power Supply with Din-Rail Mounting (RoHS, for NS-205PSE)

3.7. Tiny Serial-to-Ethernet Device Server and Modbus Gateway



tDS-700 Series

Tiny Serial-to-Ethernet Device Server

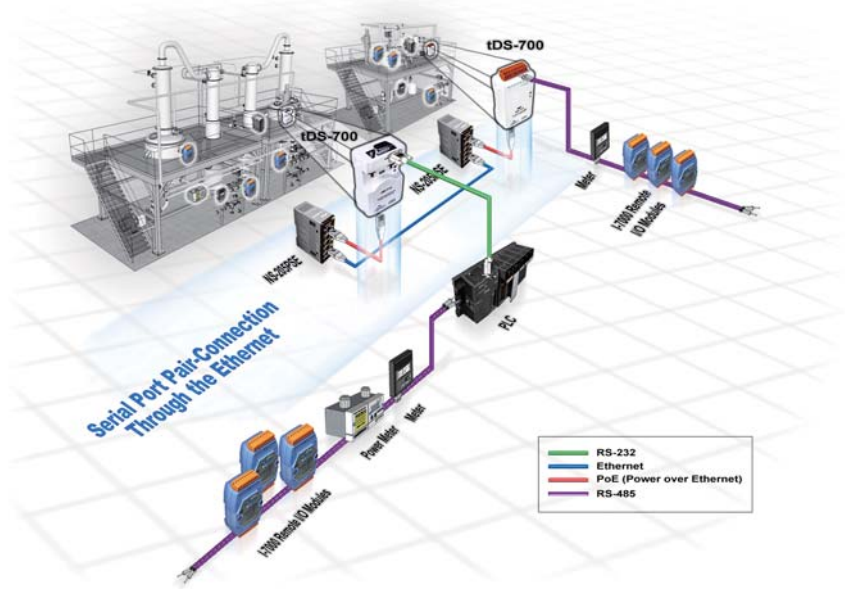
Features

- Incorporates any RS-232/422/485 serial device in Ethernet
- Includes a VxComm Driver for 32/64-bit Windows XP/2003/Vista/7
- Supports pair-connection (serial-bridge, serial-tunnel) applications
- Contains a 32-bit MCU that efficiently handles network traffic
- 10/100 Base-TX Ethernet, RJ-45 x1 (Auto-negotiating, auto MDI/MDIX, LED Indicators)
- Includes redundant power inputs: PoE and DC jack
- Allows automatic RS-485 direction control
- Supports TCP, UDP, HTTP, DHCP, BOOTP and TFTP protocols
- Supports UDP responder for device discovery
- Allows easy firmware updates via the Ethernet
- Contains a tiny Web server for configuration
- Male DB-9 or terminal block connector for easy wiring
- Tiny form-factor and low power consumption
- RoHS compliant with no Halogen
- Made from fire retardant materials (UL94-V0 Level)
- Cost-effective Device Servers



Introduction

The tDS-700 is a series of Serial-to-Ethernet device servers designed to add Ethernet and Internet connectivity to any RS-232 and RS-422/485 device, and to eliminate the cable length limitation of legacy serial communication. By using the VxComm Driver/Utility, the built-in COM port of the tDS-700 series can be virtualized to a standard PC COM port in Windows. Therefore, users can transparently access or monitor serial devices over the Internet/Ethernet without software modification.



The VxComm Driver/Utility supports the most popular operating system in the world, including 32-bit and 64-bit Windows 7/Vista/2008/2003/XP. The virtual COM works transparently and is protocol independent, enabling perfect integration with your current central computer. The utility provides an easy configuration interface that can be used to quickly create and map virtual COM ports to one or several tDS-700 modules. In addition, the utility contains a built-in terminal program, so users can send/receive command/data via the terminal program for easy testing.

The tDS-700 device servers can be used to create a pair-connection application (as well as serial-bridge or serial-tunnel), and can then route data over TCP/IP between two serial devices, which is useful when connecting mainframe computers, servers or other serial devices that do not themselves have Ethernet capability. By virtue of its protocol independence and flexibility, the tDS-700 meets the demands of virtually any network-enabled application.

DHCP minimizes configuration errors caused by manual IP address configuration, such as address conflicts caused by the assignment of an IP address to more than one computer or device at the same time. The tDS-700 supports the DHCP client function, which allows the tDS-700 to easily obtain the necessary TCP/IP configuration information from a DHCP server. The tDS-700 also contains a UDP responder that transmits its IP address information in response to a UDP search from the VxComm Utility, making local management more efficient.

The tDS-700 features a powerful 32-bit MCU to enable efficient handling of network traffic. It also has a built-in web server that provides an intuitive web management interface to allow users to modify the settings of the module, including DHCP/Static IP, gateway/mask and serial ports.

Based on an amazing tiny form-factor, the tDS-700 achieves the maximum space savings that allows it to be easily installed anywhere, even directly attached to a serial device or embedded into a machine.

The tDS-700 series also contains a built-in CPU watchdog, which automatically resets the CPU if the built-in firmware is operating abnormally, or if there is no communication between the tDS-700 and the host for a predefined period of time (system timeout). This is an important feature that ensures the tDS-700 operates continuously, even in harsh environments.

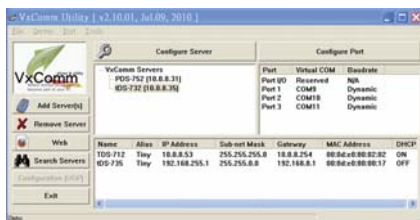
The tDS-700 offers true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) functionality using a standard category 5 Ethernet cable to receive power from a PoE switch such as the NS-205PSE.

If there is no PoE switch on site, the tDS-700 will also accept power input from a DC adapter. The tDS-700 is designed for ultra-low power consumption, reducing hidden costs from increasing fuel and electricity prices, especially when you

have a huge amount of device servers installed. Reducing the amount of electricity consumed by choosing energy-efficient equipment can have a positive impact on maintaining a green environment.

The tDS-712 is equipped with a male DB-9 connector, while other models are equipped with a removable terminal block connector to allow easy wiring, and also supports automatic RS-485 direction control when sending and receiving data.

The tDS-700 has the same basic Serial-to-Ethernet gateway and virtual COM functions as the PPDS-700-MTCP series, as shown in the right-hand-side comparison table.



	tDS-700 Series	PPDS-700-MTCP Series
Ethernet	10/100 M, PoE	10/100 M, PoE
Programmable	-	Yes
Virtual COM	Yes	Yes
Virtual I/O	-	Yes
DHCP	Yes	Yes
Web Configuration	Yes	Yes
UDP Search	Yes	Yes
Modbus Gateway	-	Yes
Multi-client	-	Yes
Remarks	Cost-effective	-

Applications

- Factory Automation
- Building Automation
- Home Automation
- Remote Diagnosis and Management





tGW-700 Series

Tiny Modbus/TCP to RTU/ASCII Gateway

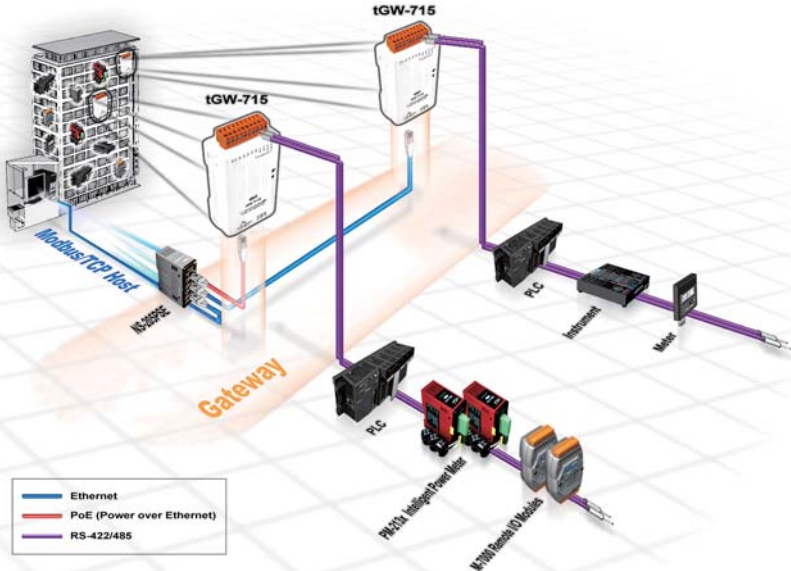
Features

- Cost-effective Modbus/TCP to RTU/ASCII Gateway
- Supports Modbus/TCP master and slave
- Supports Modbus RTU/ASCII master and slave
- Contains a 32-bit MCU that efficiently handles network traffic
- 10/100 Base-TX Ethernet, RJ-45 x1 (Auto-negotiating, auto MDI/MDIX, LED Indicators)
- Includes redundant power inputs: PoE and DC jack
- Allows automatically RS-485 direction control
- Supports TCP, UDP, HTTP, DHCP, BOOTP and TFTP protocols
- Supports UDP responder for device discovery
- Allows easy firmware updates via the Ethernet
- Contains a tiny Web server for configuration
- Male DB-9 or terminal block connector for easy wiring
- Tiny form-factor and low power consumption
- RoHS compliant with no Halogen
- Made from fire retardant materials (UL94-V0 Level)

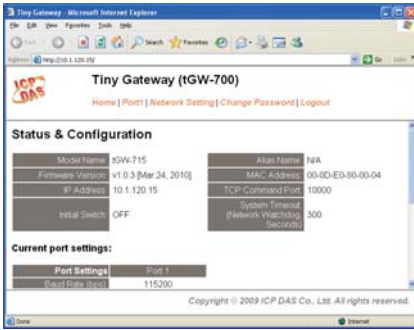


Introduction

Modbus has become a de facto standard industrial communication protocol, and is now the most commonly available means of connecting industrial electronic devices. Modbus allows for communication between many devices connected to the same RS-485 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 tGW-700 module is a Modbus TCP to RTU/ASCII gateway that enables a Modbus/TCP host to communicate with serial Modbus RTU/ASCII devices through an Ethernet network, and eliminates the cable length limitation of legacy serial communication devices. The module can be used to create a pair-connection application (as well as serial-bridge or serial-tunnel application), and can then route data over TCP/IP between two serial Modbus RTU/ASCII devices, which is useful when connecting mainframe computers, servers or other serial devices that use Modbus RTU/ASCII protocols and do not themselves have Ethernet capability.



DHCP minimizes configuration errors caused by manual IP address configuration, such as address conflicts caused by the assignment of an IP address to more than one computer or device at the same time. The tGW-700 module supports the DHCP client function, which allows it to easily obtain the necessary TCP/IP configuration information from a DHCP server. The module also contains a UDP responder that transmits its IP address information in response to a UDP search from the eSearch utility, making local management more efficient.

The tGW-700 module features a powerful 32-bit MCU to enable efficient handling of network traffic, and also has a built-in web server that provides an intuitive web management interface that allows users to modify the configuration of the module, including the DHCP/Static IP, the gateway/mask settings and the serial port settings.

The module contains a dual watchdog, including a CPU watchdog (for hardware functions) and a host watchdog (for software functions). The CPU watchdog automatically resets the CPU if the built-in firmware is operating abnormally, while the host watchdog automatically resets the CPU if there is no communication between the module and the host (PC or PLC) for a predefined period of time (system timeout). The dual watchdog is an important feature that ensures the module operates continuously, even in harsh environments.



The tGW-700 module offers true IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) functionality using a standard category 5 Ethernet cable to receive power from a PoE switch such as the NS-205PSE. If there is no PoE switch on site, the module will also accept power input from a DC adapter. The tGW-700 module is designed for ultra-low power consumption, reducing hidden costs from increasing fuel and electricity prices, especially when you have a large number of modules installed. Reducing the amount of electricity consumed by choosing energy-efficient equipment can have a positive impact on maintaining a green environment.

The module is equipped with a male DB-9 or a removable terminal block connector to allow easy wiring. Based on an amazing tiny form-factor, the tGW-700 achieves maximum space savings that allows it to be easily installed anywhere, even directly embedded into a machine. It also supports automatic RS-485 direction control when sending and receiving data, thereby improving the stability of the RS-485 communication.

	tGW-700 Series	PPDS-700-MTCP Series
Ethernet	10/100 M, PoE	10/100 M, PoE
Programmable	-	Yes
Virtual COM	-	Yes
Virtual I/O	-	Yes
DHCP	Yes	Yes
Web Configuration	Yes	Yes
UDP Search	Yes	Yes
Modbus Gateway	Yes	Yes
Multi-client	-	Yes
Remarks	Cost-effective	-

Applications

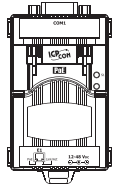
- Factory Automation
- Building Automation
- Home Automation
- Remote Diagnosis and Management



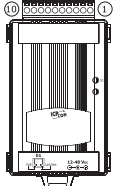
Specifications

Models	tDS-712 tGW-712	tDS-722 tGW-722	tDS-732 tGW-732	tDS-715 tGW-715	tDS-725 tGW-725	tDS-735 tGW-735	tDS-718 tGW-718	tDS-724 tGW-724	tDS-734 tGW-734
System									
CPU	32-bit MCU								
Communication Interface									
Ethernet	10/100 Base-TX, 8-pin RJ-45 x 1, (Auto-negotiating, Auto-MDI/MDIX, LED indicator) PoE (IEEE 802.3af, Class 1)								
COM1	5-wire RS-232	5-wire RS-232	3-wire RS-232	2-wire RS-485	2-wire RS-485	2-wire RS-485	3-wire RS-232	2-wire RS-485	2-wire RS-485
				4-wire RS-422			4-wire RS-485		
COM2	-	5-wire RS-232	3-wire RS-232	-	2-wire RS-485	2-wire RS-485	-	5-wire RS-232	3-wire RS-232
COM3	-	-	3-wire RS-232	-	-	2-wire RS-485	-	-	3-wire RS-232
Self-Tuner	-			Yes, automatic RS-485 direction control					
UART	16c550 or compatible								
COM Port Format									
Baud Rate	115200 bps Max.								
Data Bit	5, 6, 7, 8								
Parity	None, Odd, Even, Mark, Space								
Stop Bit	1, 2								
Power									
Power Input	PoE	IEEE 802.3af, Class 1							
	DC jack	+12 – 48 V _{DC}							
Power Consumption	0.05 A @ 24 V _{DC}								
Connector	Male DB-9 x 1	10-Pin Removable Terminal Block x 1							
Mechanical									
Flammability	Fire Retardant Materials (UL94-V0 Level)								
Dimensions (W x H x D) (mm)	52 x 90 x 27	52 x 95 x 27							
Installation	DIN-Rail mounting								
Environment									
Operating Temperature	-25 °C – +75 °C								
Storage Temperature	-30 °C – +80 °C								
Humidity	10 – 90% RH, non-condensing								
3-wire RS-232: RxD, TxD, GND (Non-isolated) 5-wire RS-232: RxD, TxD, CTS, RTS, GND (Non-isolated) 2-wire RS-485: DATA+, DATA-, GND (Non-isolated) 4-wire RS-422: TxD+, TxD-, RxD+, RxD-, GND (Non-isolated)									

Pin Assignments



IDS-712/iGW-712	
09	N/A
08	CTS1
07	RTS1
06	N/A
05	GND
04	N/A
03	TxD1
02	RxD1
01	N/A



IDS-722/iGW-722	
10	F.G.
09	CTS2
08	RTS2
07	RxD2
06	TxD2
05	GND
04	CTS1
03	RTS1
02	RxD1
01	TxD1

IDS-732/iGW-732	
10	F.G.
09	GND
08	RxD3
07	TxD3
06	GND
05	RxD2
04	TxD2
03	GND
02	RxD1
01	TxD1

IDS-715/iGW-715	
10	F.G.
09	N/A
08	N/A
07	N/A
06	N/A
05	GND
04	RxD1-
03	RxD1+
02	TxD1-/D1+
01	TxD1+/D1+

IDS-725/iGW-725	
10	F.G.
09	N/A
08	N/A
07	N/A
06	GND
05	D2-
04	D2+
03	GND
02	D1-
01	D1+

IDS-735/iGW-735	
10	F.G.
09	GND
08	D3-
07	D3+
06	GND
05	D2-
04	D2+
03	GND
02	D1-
01	D1+

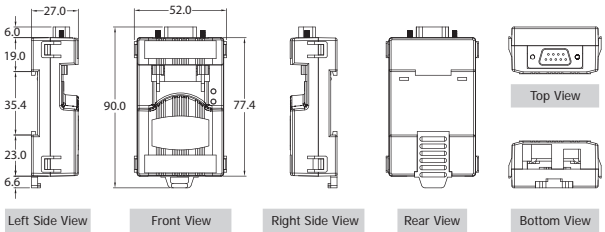
IDS-718/iGW-718	
10	F.G.
09	N/A
08	GND
07	RxD1
06	TxD1
05	GND
04	RxD1-
03	RxD1+
02	TxD1-/D1+
01	TxD1+/D1+

IDS-724/iGW-724	
10	F.G.
09	GND
08	CTS2
07	RTS2
06	GND
05	RxD2
04	TxD2
03	GND
02	D1-
01	D1+

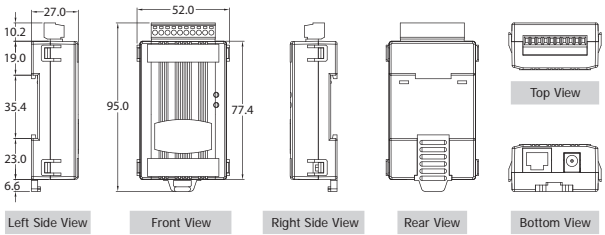
IDS-734/iGW-734	
10	F.G.
09	GND
08	RxD3
07	TxD3
06	GND
05	RxD2
04	TxD2
03	GND
02	D1-
01	D1+

Dimensions (Unit: mm)

IDS-712/iGW-712



iDS-715/718/722/725/732/735/724/734 & iGW-715/718/722/725/732/735/724/734



Ordering Information

iDS-700 Series	
NEW	iDS-712 CR Tiny Device Server with PoE and 1 RS-232 Port (RoHS)
NEW	iDS-722 CR Tiny Device Server with PoE and 2 RS-232 Ports (RoHS)
NEW	iDS-732 CR Tiny Device Server with PoE and 3 RS-232 Ports (RoHS)
NEW	iDS-715 CR Tiny Device Server with PoE and 1 RS-422/485 Port (RoHS)
NEW	iDS-725 CR Tiny Device Server with PoE and 2 RS-485 Ports (RoHS)
NEW	iDS-735 CR Tiny Device Server with PoE and 3 RS-485 Ports (RoHS)
NEW	iDS-718 CR Tiny Device Server with PoE and 1 RS-232/422/485 Port (RoHS)
Available Soon	iDS-724 CR Tiny Device Server with PoE, 1 RS-485 and 1 RS-232 Ports (RoHS)
Available Soon	iDS-734 CR Tiny Device Server with PoE, 1 RS-485 and 2 RS-232 Ports (RoHS)
iGW-700 Series	
NEW	iGW-712 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 1 RS-232 Port (RoHS)
NEW	iGW-722 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 2 RS-232 Ports (RoHS)
NEW	iGW-732 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 3 RS-232 Ports (RoHS)
NEW	iGW-715 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 1 RS-422/485 (RoHS)
NEW	iGW-725 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 2 RS-485 Ports (RoHS)
NEW	iGW-735 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 3 RS-485 Ports (RoHS)
NEW	iGW-718 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 1 RS-232/422/485 Port (RoHS)
Available Soon	iGW-724 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE, 1 RS-485 and 1 RS-232 Ports (RoHS)
Available Soon	iGW-734 CR Tiny Modbus/TCP to RTU/ASCII Gateway with PoE, 1 RS-485 and 2 RS-232 Ports (RoHS)

Accessories

CA-0915	Male DB-9 to Female DB-9 Cable, 1.5 m
CA-0910F	Female DB-9 to Female DB-9 Cable, 1.0 m
CA-0910N	DB-9 Female-Female 3-wire Null Modem Cable, 1M
CA-PC09F	DB-9 Female Connector with Plastic Cover
FRA05-S12-SU CR	12V/0.58A (max.) Power Supply (RoHS, for IDS/iGW-700)
DIN-KA52F CR	24V/1.04A, 25 W Power Supply with Din-Rail Mounting (RoHS, for NS-205 and NS-205PSE-24V)
DIN-KA52F-48 CR	48V/0.52A, 25 W Power Supply with Din-Rail Mounting (RoHS, for NS-205PSE)
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)
NS-205PSE-24V CR	Unmanaged 5-Port 10/100 Mbps PoE (PSE) Ethernet Switch; 24 Vdc Input (RoHS)

3.8. μ PAC-7186EX(D)-MTCP Modbus to Ethernet Gateway



μ PAC-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 μ PAC-7186EX(D)-MTCP uses a default firmware to become a single Modbus/RTU 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 μ PAC-7186EX(D)-MTCP.

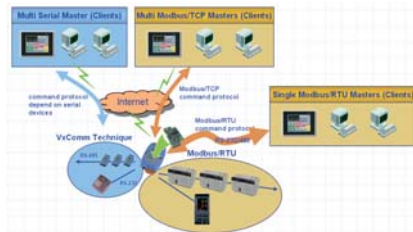
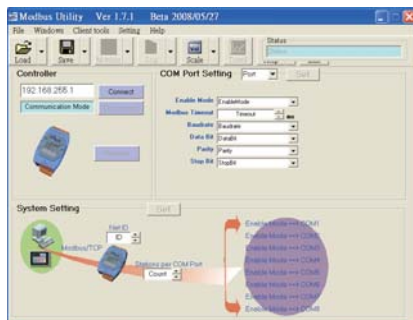
The μ PAC-7186EX(D)-MTCP can also link to legacy serial devices that don't support Modbus/RTU. To use this function, you need to install the VxComm driver on the host PCs and create virtual COM ports for the remote serial ports on the μ PAC-7186EX(D)-MTCP. You can then directly access the remote serial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

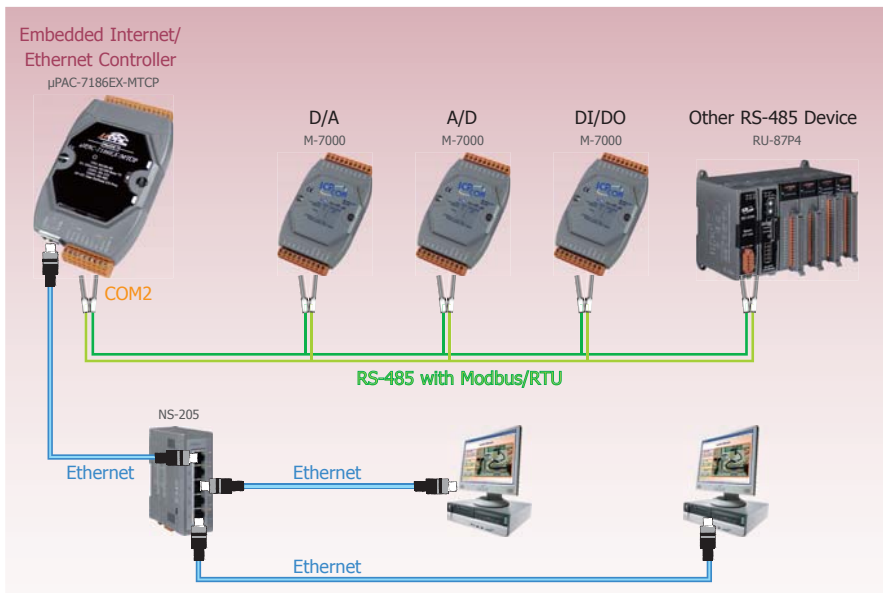
The μ PAC-7186EX(D)-MTCP contains a built-in operating system, the MiniOS7, which offers a stable and high performance environment that is similar to DOS. The MiniOS7 can boot up the μ PAC-7186EX(D)-MTCP within just one second, with the added benefit of no virus problems and a small footprint. Furthermore, the μ PAC-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 μ PAC-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 μ PAC-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

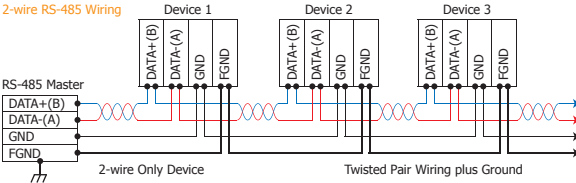
Terminal No.	Pin Assignment
E1	Link/Act 10/100M
COM1	01 CTS1
	02 RTS1
	03 RxD1
	04 TxD1
05	INIT*
COM2	06 D2+
	07 D2-
	08 (R)+Vs
	09 (B)GND

I/O Expansion Bus

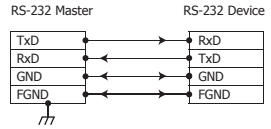
J1				J2			
GND	01	02	GND	MA0	01	02	AD0
CLKOUTA	03	04	ARDY	MA1	03	04	AD1
INT0	05	06	INT1	MA2	05	06	AD2
VCC	07	08	RESET	MA3	07	08	AD3
GND	09	10	RESET\	MA4	09	10	AD4
TO0	11	12	TO1	MA5	11	12	AD5
TI0	13	14	TI1	MA6	13	14	AD6
SCLK	15	16	DIO9	MA7	15	16	AD7
DIO4	17	18	DIO14	INT4	17	18	WRITE\
VCC	19	20	VCC	CS\	19	20	READ\
CON20A JDIP20P				CON20A JDIP20P			

Wiring

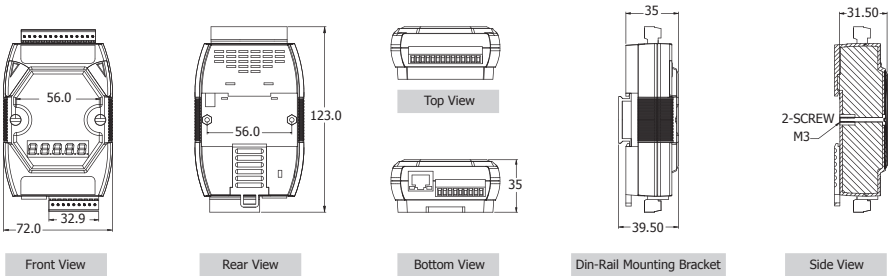
2-wire RS-485 Wiring



3-wire RS-232 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 Vdc/0.25 A, 6 W Power Supply
MDR-20-24	24 Vdc/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)