

tDS-700

Tiny Serial-to-Ethernet device server

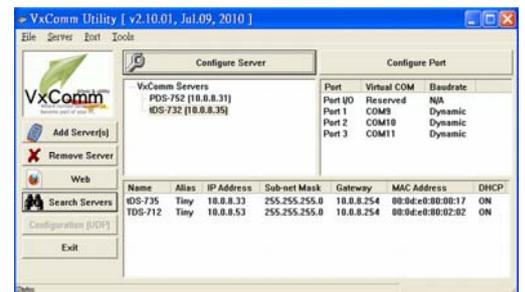
Features

- 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 Built-in 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

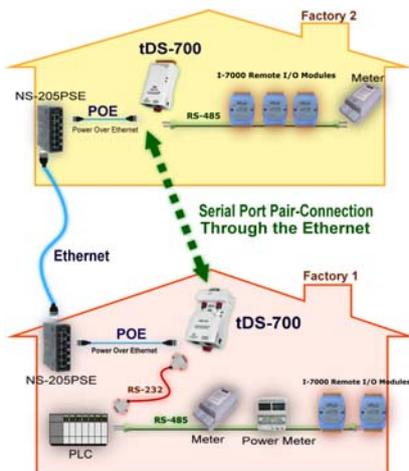


Introduction

The tDS-700 is a series of Serial-to-Ethernet device servers that are 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.

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Tiny Serial-to-Ethernet Device Server

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 comparison table below.

| | 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 | - |

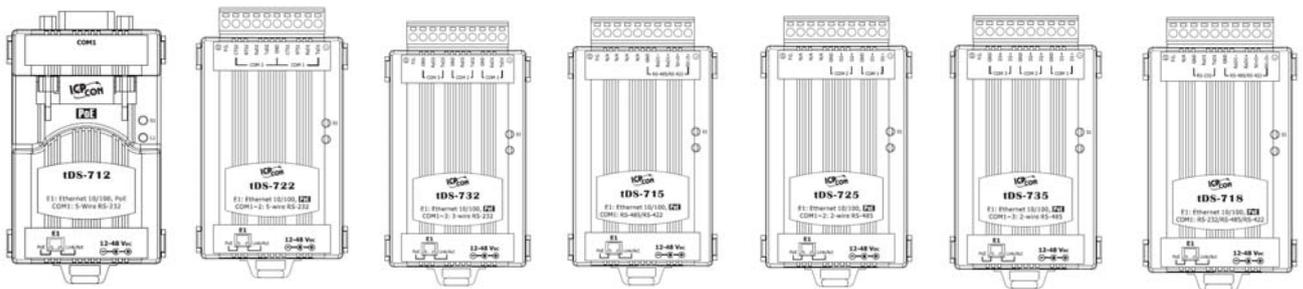
Applications

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

Specifications

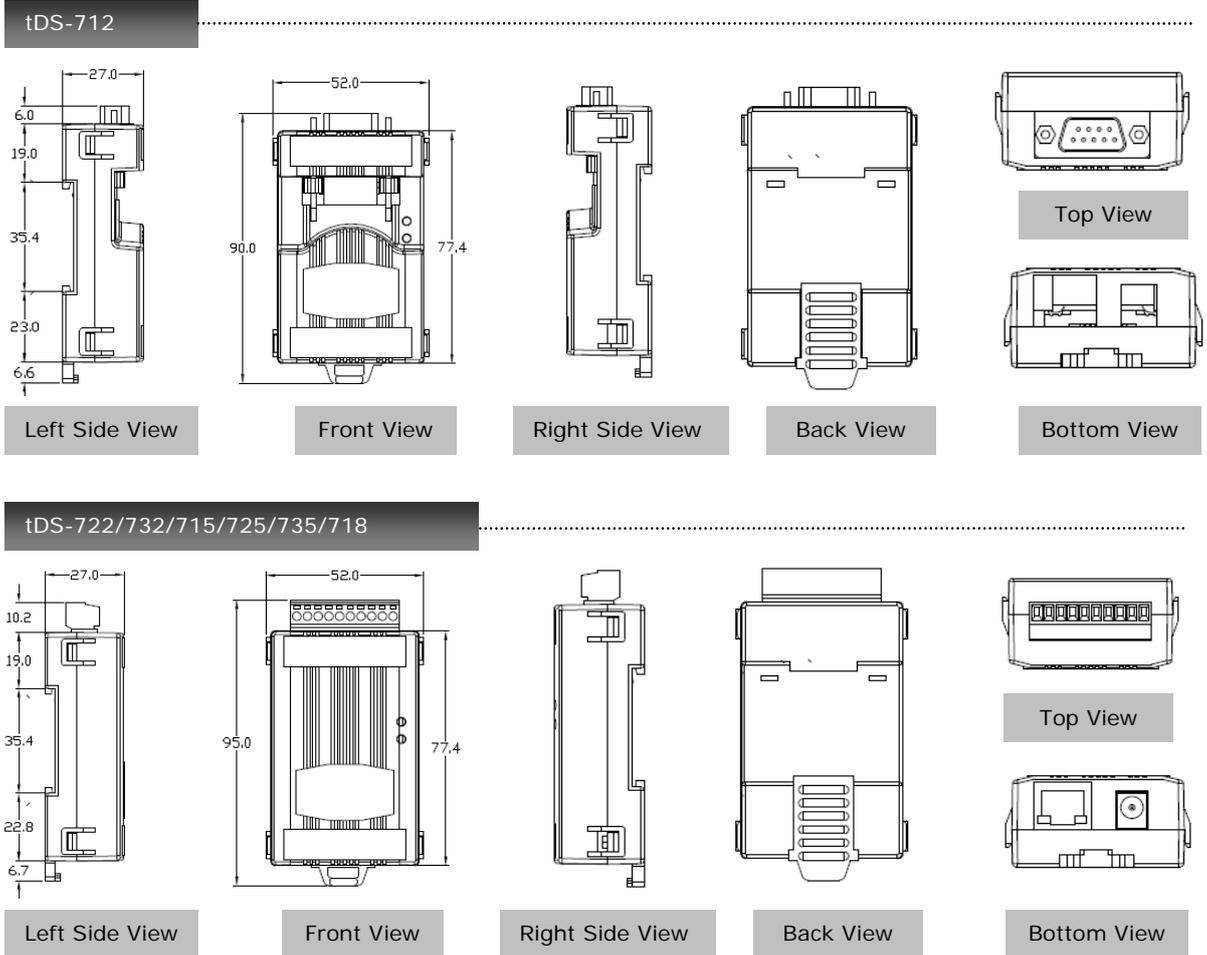
| Model | tDS-712 | tDS-722 | tDS-732 | tDS-715 | tDS-725 | tDS-735 | tDS-718 |
|---|---|-------------------------------------|---------------|---|---------------|---------------|---|
| System | | | | | | | |
| CPU | 32-bit MCU | | | | | | |
| Communication Interface | | | | | | | |
| Ethernet | 10/100 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 4-wire RS-422 | 2-wire RS-485 | 2-wire RS-485 | 3-wire RS-232 2-wire RS-485 4-wire RS-422 |
| COM2 | - | 5-wire RS-232 | 3-wire RS-232 | - | 2-wire RS-485 | 2-wire RS-485 | - |
| COM3 | - | - | 3-wire RS-232 | - | - | 2-wire RS-485 | - |
| 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 | | | | | | |
| General | | | | | | | |
| 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 x1 | 10-Pin Removable Terminal Block x 1 | | | | | |
| Mounting | DIN-Rail | | | | | | |
| Flammability | Fire Retardant Materials (UL94-V0 Level) | | | | | | |
| Operating Temperature | -25° ~ 75°C | | | | | | |
| Storage Temperature | -30° ~ 80°C | | | | | | |
| Humidity | 10 ~ 90% RH, non-condensing | | | | | | |
| 3-Wire RS-232: Rx/D, Tx/D, GND (Non-isolated) 5-Wire RS-232: Rx/D, Tx/D, CTS, RTS, GND (No-isolated) 2-Wire RS-485: DATA+, DATA-, GND (Non-isolated) 4-Wire RS-422: Tx/D+, Tx/D-, Rx/D+, Rx/D-, GND (Non-isolated) | | | | | | | |

Pin Assignments



| | tDS-712 | tDS-722 | tDS-732 | tDS-715 | tDS-725 | tDS-735 | tDS-718 | | |
|----------------------|---------|---------|---------|-----------|---------|---------|---------|-----------|-----------|
| COM1 (Male DB-9) | 9 | N/A | 10 | F.G. | 10 | F.G. | 10 | F.G. | |
| | 8 | CTS1 | 9 | N/A | 9 | N/A | 9 | N/A | |
| | 7 | RTS1 | 8 | N/A | 8 | N/A | 8 | N/A | |
| | 6 | N/A | 7 | N/A | 7 | N/A | 7 | N/A | |
| | 5 | GND | 6 | N/A | 6 | N/A | 6 | N/A | |
| | 4 | N/A | 5 | GND | 5 | GND | 5 | GND | |
| | 3 | TxD1 | 4 | RxD1- | 4 | D2+ | 4 | D2+ | |
| | 2 | RxD1 | 3 | RxD1+ | 3 | D1- | 3 | D1- | |
| | 1 | N/A | 2 | TxD1+/D1+ | 2 | D1+ | 2 | D1+ | |
| COM2 | | 10 | F.G. | 10 | F.G. | 10 | F.G. | 10 | F.G. |
| | | 9 | CTS2 | 9 | GND | 9 | GND | 9 | GND |
| | | 8 | RTS2 | 8 | RxD3 | 8 | D3- | 8 | GND |
| | | 7 | RxD2 | 7 | TxD3 | 7 | D3+ | 7 | RxD1 |
| | | 6 | TxD2 | 6 | GND | 6 | GND | 6 | TxD1 |
| | | 5 | GND | 5 | RxD2 | 5 | D2- | 5 | GND |
| | | 4 | CTS1 | 4 | TxD2 | 4 | D2+ | 4 | RxD1- |
| | | 3 | RTS1 | 3 | GND | 3 | GND | 3 | RxD1+ |
| | | 2 | RxD1 | 2 | RxD1 | 2 | D1- | 2 | TxD1-/D1- |
| | 1 | TxD1 | 1 | TxD1 | 1 | D1+ | 1 | TxD1+/D1+ | |
| COM3 | | | | | | | | | |
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| COM1 (RS-485/RS-422) | | | | | | | | | |
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Dimensions (Unit: mm)



Ordering Information

| | |
|------------|--|
| tDS-712 CR | Tiny Device Server with PoE and 1 RS-232 Port (RoHS) |
| tDS-722 CR | Tiny Device Server with PoE and 2 RS-232 Ports (RoHS) |
| tDS-732 CR | Tiny Device Server with PoE and 3 RS-232 Ports (RoHS) |
| tDS-715 CR | Tiny Device Server with PoE and 1 RS-422/485 Port (RoHS) |
| tDS-725 CR | Tiny Device Server with PoE and 2 RS-485 Ports (RoHS) |
| tDS-735 CR | Tiny Device Server with PoE and 3 RS-485 Ports (RoHS) |
| tDS-718 CR | Tiny Device Server with PoE and 1 RS-232/422/485 Port (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 |
| 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) |

