

Tiny Serial-to-Ethernet Device Server

tDS-700/tDS-2200 Series

Tiny Serial-to-Ethernet Device Server



tDS-712 tDS-700 series tDSM-712 tDS-2200 series

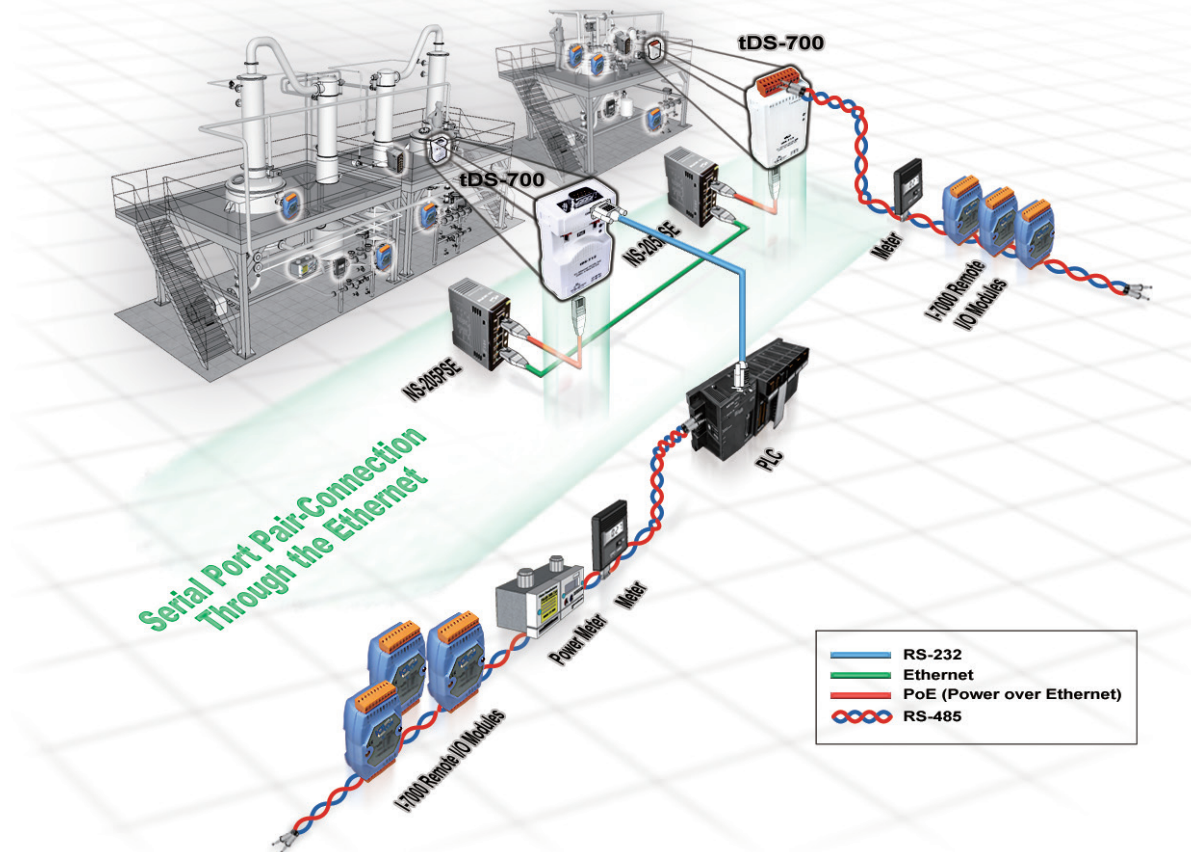


Features >>>

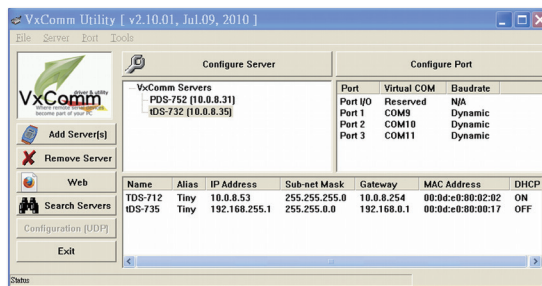
- Incorporates any RS-232/422/485 serial device in Ethernet
- Application Modes: Virtual COM, TCP Server, TCP Client
- Virtual COM for 32/64-bit Windows XP/7/10/2012/2016
- Data Packing Modes: Length, Delimiter, timeout, Char-timeout.
- Supports pair-connection (serial-bridge, serial-tunnel) applications
- Supports UDP responder for device discovery (UDP Search)
- Static IP or DHCP network configuration
- Easy firmware update via the Ethernet (BOOTP, TFTP)
- Tiny Web server for serial and network configuration (HTTP)
- Contains a 32-bit MCU that efficiently handles network traffic
- tDS-700/tDSM-712: 10/100 Base-TX Ethernet, RJ-45 × 1
- tDS-2200: 2-port Ethernet Switch (LAN Bypass for Daisy-Chain Wiring)
- Redundant power inputs: PoE and DC jack
- Allows automatic RS-485 direction control
- Power or Signal isolation for i versions
- ±4 kV ESD protection
- tDSM-712 is the tDS-712 with Metal Case
- Male DB-9 or terminal block connector for easy wiring
- Tiny form-factor and low power consumption
- RoHS compliant & no Halogen

Introduction

The tDS-700/tDS-2200 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/tDS-2200 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. **Note: For multiple TCP connections on the same serial port, use PDS-700 instead.**



The VxComm Driver/Utility supports the most popular operating system in the world, including 32-bit and 64-bit Windows XP/7/10/2012/2016. **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/tDS-2200 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.



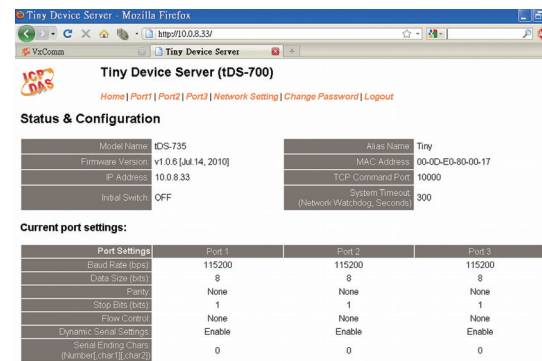
The tDS-700/tDS-2200 device servers can be used to create a pair-connection application (as well as serial-bridge or serial-tunnel), and can then route data over TCP/IP between two serial devices, which is useful when connecting mainframe computers, servers or other serial devices that do not themselves have Ethernet capability. By virtue of its protocol independence and flexibility, the tDS-700/tDS-2200 meets the demands of virtually any network-enabled application.

Daisy-Chain Ethernet Cabling



The tDS-2200 series has a built-in two-port Ethernet switch to implement daisy-chain topology. The cabling is much easier and total costs of cable and switch are significantly reduced. LAN Bypass feature guarantees the Ethernet communication if tDS-2200 loses its power.

The tDS-700/tDS-2200 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/tDS-2200 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/tDS-2200 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/tDS-2200 and the host for a predefined period of time (system timeout). This is an important feature that ensures the tDS operates continuously, even in harsh environments.



The tDS-700/tDS-2200 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/tDS-2200 will also accept power input from a DC adapter. The tDS-700/tDS-2200 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.

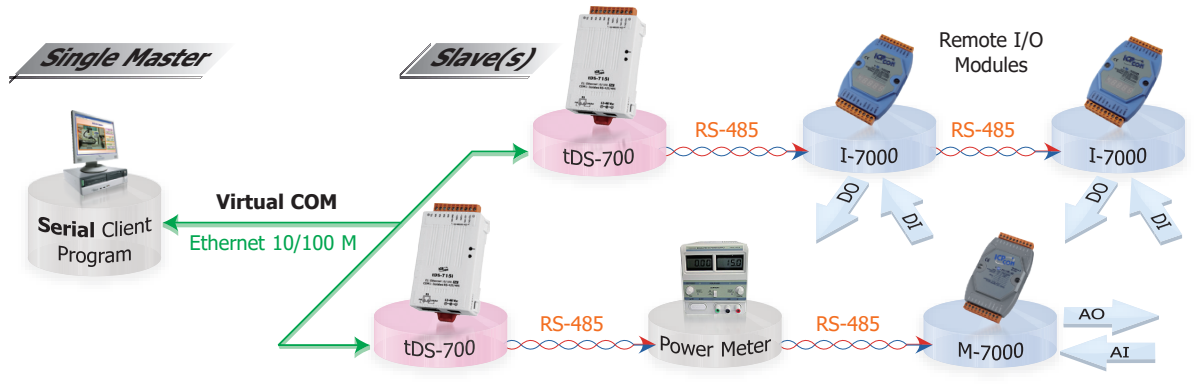
Applications

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

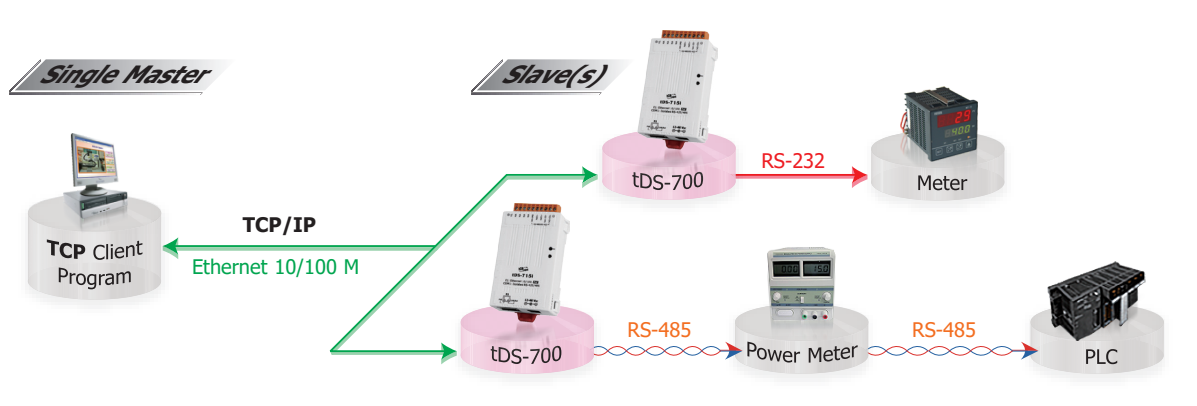


Comparison Table	tDS-700 Series	PDS-700 Series
Ethernet	10/100 M, PoE	10/100 M
Programmable	-	Yes
Virtual COM	Yes	Yes
Virtual I/O	-	Yes
DHCP	Yes	Yes
Web Configuration	Yes	Yes
UDP Search	Yes	Yes
Multi-client	-	Yes
Remarks	Cost-effective	-

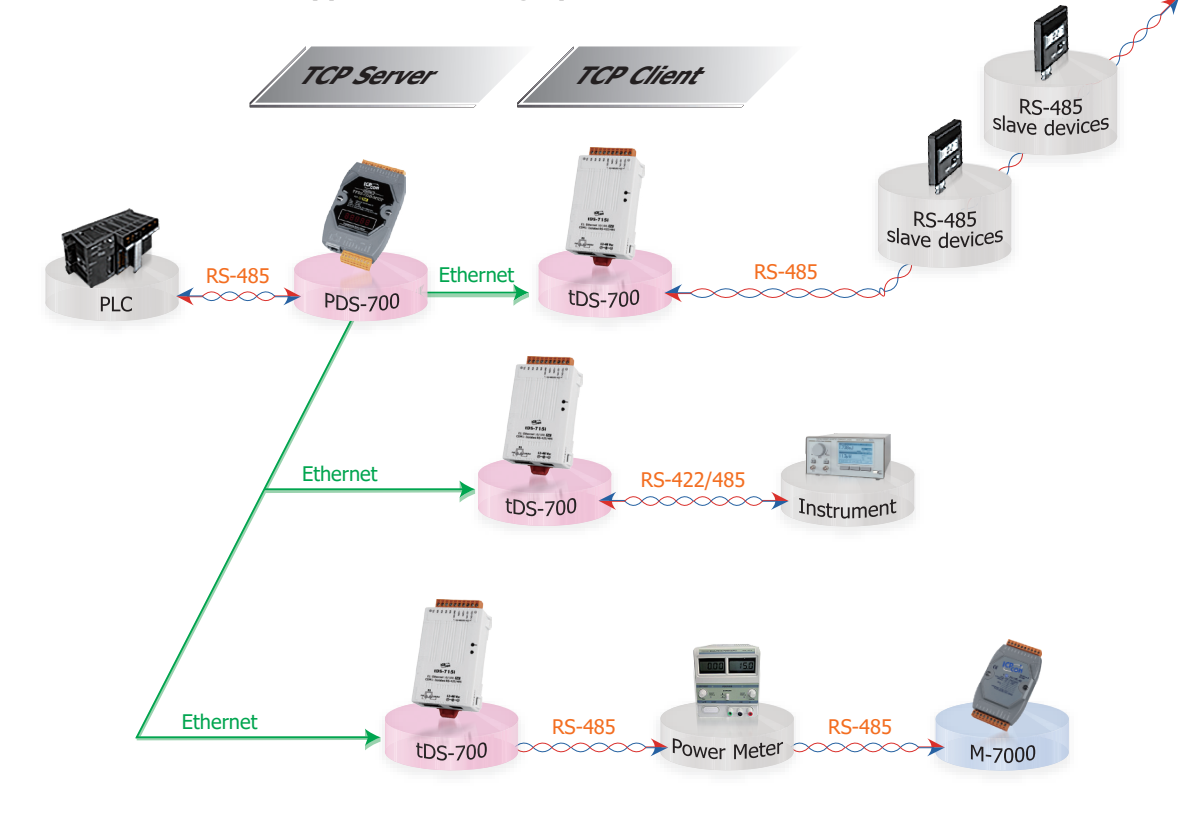
1. Access serial device via Virtual COM ports



2. Access serial device via TCP/IP socket connection



3. Virtual RS-485 bus application through pair-connection



2
7

Serial Device Server

System Specifications

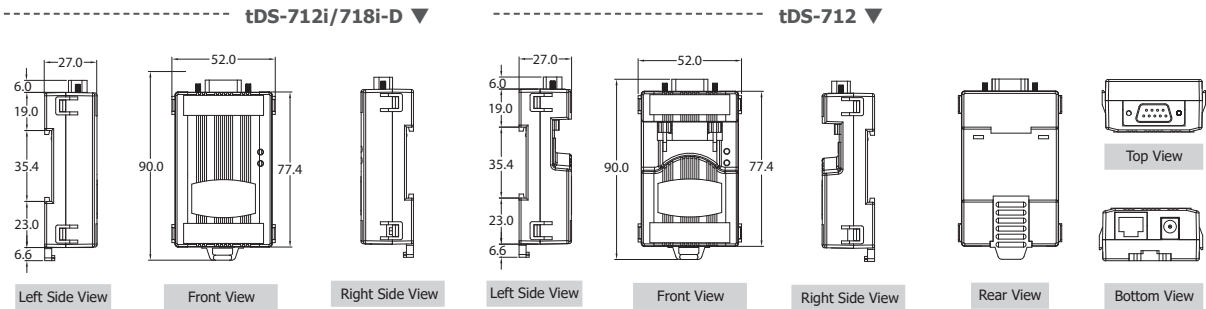
Models	tDS-712 tDS-712i tDSM-712 tDS-2212	tDS-722 tDS-722i	tDS-732 tDS-732i	tDS-715 tDS-715i tDS-2215	tDS-725 tDS-725i tDS-2225	tDS-735 tDS-735i tDS-2235	tDS-718 tDS-718i	tDS-718i-D	tDS-724 tDS-724i	tDS-734 tDS-734i
System										
CPU	32-bit MCU									
Communication Interface										
Ethernet	700 Series	10/100 Base-TX, 8-pin RJ-45 x 1, (Auto-negotiating, Auto-MDI/MDIX, LED indicator)								
	2200 Series	2-Port 10/100 Base-TX Ethernet Switch with LAN Bypass, RJ-45 x 2 (Auto-negotiating, Auto-MDI/MDIX, LED indicator)								
PoE	IEEE 802.3af, Class 1									
COM Port	1 x RS-232	2 x RS-232	3 x RS-232	1 x RS-422/ RS-485	2 x RS-485	3 x RS-485	1 x RS-232 or RS-422/485		1 x RS-485 1 x RS-232	1 x RS-485 2 x RS-232
Self-Tuner	-			Yes, automatic RS-485 direction control						
Power Isolation	1000 Vdc for tDS-722i/ 732i /718i-D only									
Signal Isolation	3000 Vdc for tDS-712i/ 715i/ 725i/ 735i/ 718i /724i /734i only									
ESD Protection	+/-4 kV									
COM Port Capability (16C550 or compatible UART)										
Baud Rate	115200 bps Max.									
Data Bit	5, 6, 7, 8									
Parity	None, Odd, Even, Mark, Space									
Stop Bit	1, 2									
Power										
Power Input	IEEE 802.3af, Class 1 for PoE +12 ~ 48 Vdc for DC Jack									
Power Consumption	0.07 A @ 24 Vdc									
Mechanical										
Connector	700 Series	Male DB-9 x 1	10-pin Removable Terminal Block x 1				Male DB-9 x 1	10-pin Removable Terminal Block x 1		
	2200 Series	5-pin Removable Terminal Block x 3								
Dimensions (W x H x D)	700 Series	52 mm x 95 mm x 27 mm (tDS-712: 52 mm x 90 mm x 27 mm) (tDSM-712: 75 mm x 83 mm x 24 mm)								
	2200 Series	90mm x 110mm x 33mm (without connectors)								
Installation	DIN-Rail mounting									
Case	Metal for tDSM-712; Plastic for others.									
Environment										
Operating Temperature	-25 °C ~ +75 °C									
Storage Temperature	-30 °C ~ +80 °C									
Humidity	10 ~ 90% RH, non-condensing									

Pin Assignments

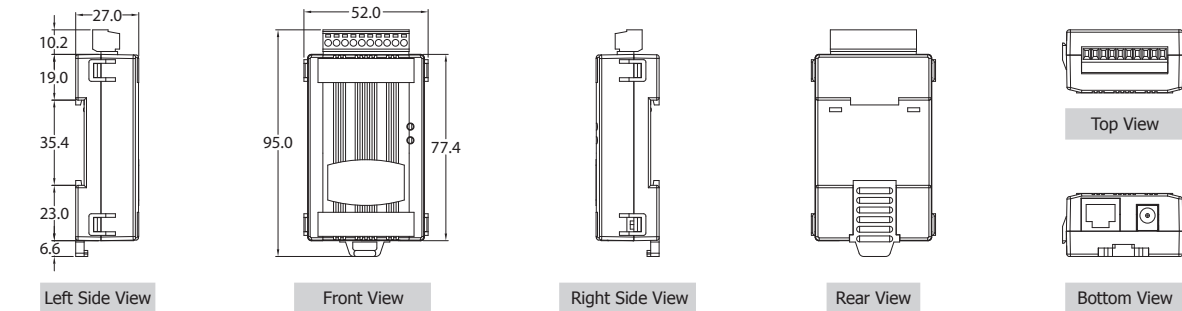
	tDS-712/tDS-712i/tDSM-712					tDS-722/tDS-722i		tDS-732/tDS-732i		tDS-735/tDS-735i		tDS-718/tDS-718i			
	09	N/A				10	F.G.	10	F.G.	10	F.G.	10	F.G.	09	N/A
	08	CTS1				09	CTS2	09	GND	09	GND	09	GND	08	GND
	07	RTS1				08	RTS2	08	RxD3	08	D3-	08	D3-	07	RxD1
	06	N/A				07	RxD2	07	TxD3	07	D3+	07	D3+	06	TxD1
	05	GND				06	TxD2	06	GND	06	GND	06	GND	05	GND
	04	N/A				05	GND	05	RxD2	05	D2-	05	D2-	04	RxD1-
	03	TxD1				04	CTS1	04	TxD2	04	D2+	04	D2+	03	RxD1+
	02	RxD1				03	RTS1	03	GND	03	GND	03	GND	02	TxD1-/D1-
	01	N/A				02	RxD1	02	RxD1	02	D1-	02	D1-	01	TxD1+/D1+
				01	TxD1	01	TxD1	01	D1+	01	D1+				
	tDS-718i-D				tDS-715/tDS-715i		tDS-725/tDS-725i		tDS-724/tDS-724i		tDS-734/tDS-734i				
	Terminal No.	RS-232	RS-422	RS-485	10	F.G.	10	F.G.	10	F.G.	10	F.G.			
	09	N/A	N/A	N/A	09	N/A	09	N/A	09	N/A	09	GND			
	08	CTS	N/A	N/A	08	N/A	08	N/A	08	CTS2	08	RxD3			
	07	RTS	N/A	N/A	07	N/A	07	N/A	07	RTS2	07	TxD3			
	06	N/A	N/A	N/A	06	N/A	06	GND	06	GND	06	GND			
	05	GND	GND	GND	05	GND	05	D2-	05	RxD2	05	RxD2			
	04	N/A	RxD-	N/A	04	RxD1-	04	D2+	04	TxD2	04	TxD2			
	03	TxD	RxD+	N/A	03	RxD1+	03	GND	03	GND	03	GND			
	02	RxD	TxD+	Data+	02	TxD1+/D1-	02	D1-	02	D1-	02	D1-			
01	N/A	TxD-	Data-	01	TxD1+/D1+	01	D1+	01	D1+	01	D1+				

Dimensions (Unit: mm)

tDS-712/712i/718i-D



tDS-715(i)/718(i)/722(i)/725(i)/732(i)/735(i)/724(i)/734(i)



Ordering Information

Note: ▶ Available soon

Non-Isolated	Isolated	2-port Ethernet Switch	Serial Device Server: Includes one CA-002 cable.
tDS-712 CR	tDS-712i CR	▶tDS-2212	Tiny Device Server with PoE and 1 RS-232 Port (RoHS)
tDS-722 CR	tDS-722i CR	-	Tiny Device Server with PoE and 2 RS-232 Ports (RoHS)
tDS-732 CR	tDS-732i CR	-	Tiny Device Server with PoE and 3 RS-232 Ports (RoHS)
tDS-715 CR	tDS-715i CR	▶tDS-2215	Tiny Device Server with PoE and 1 RS-422/485 Port (RoHS)
tDS-725 CR	tDS-725i CR	▶tDS-2225	Tiny Device Server with PoE and 2 RS-485 Ports (RoHS)
tDS-735 CR	tDS-735i CR	▶tDS-2235	Tiny Device Server with PoE and 3 RS-485 Ports (RoHS)
tDS-718 CR	tDS-718i CR tDS-718i-D CR	▶tDS-2218	Tiny Device Server with PoE and 1 RS-232/422/485 Port (RoHS) (10-pin Terminal Block Connector for tDS-718/718i, Male DB-9 Connector for tDS-718i-D)
tDS-724 CR	tDS-724i CR	-	Tiny Device Server with PoE, 1 RS-485 and 1 RS-232 Ports (RoHS)
tDS-734 CR	tDS-734i CR	-	Tiny Device Server with PoE, 1 RS-485 and 2 RS-232 Ports (RoHS)
tDSM-712 CR	-	-	Tiny Device Server with PoE and 1 RS-232 Port (Metal case, RoHS)

Accessories

	CA-002	DC connector to 2-wire power cable, 0.3 M
	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 tDS/tGW-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-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)