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



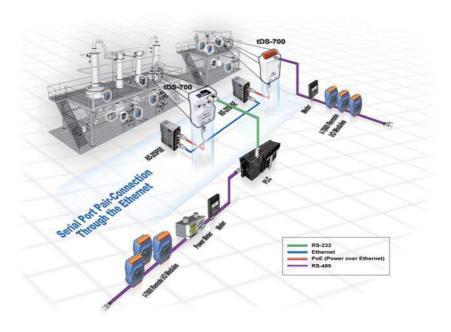
t DS-700 Series

🗾 Features



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.

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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	-



Factory Automation

Building Automation
 Home Automation

Remote Diagnosis

and Management



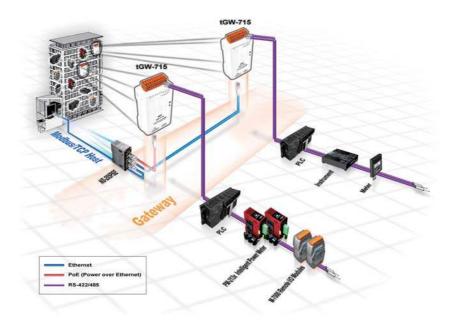
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Introduction.

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.



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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 (PbE) 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 Inter	face									
		10/100 Base-TX	, 8-pin RJ-45	x 1,						
Ethernet		(Auto-negotiating, Auto-MDI/MDIX, LED indicator)								
		PoE (IEEE 802.3	af, Class 1)							
					2-wire	-		3-wire		
					RS-485			RS-232		
COM1		5-wire	5-wire	3-wire	110 403	2-wire	2-wire	2-wire	2-wire	2-wire
CONT		RS-232	RS-232	RS-232	4-wire	RS-485	RS-485	RS-485	RS-485	RS-485
					RS-422			4-wire		
					THO HEE			RS-422		
COM2			5-wire	3-wire		2-wire	2-wire		5-wire	3-wire
COIVIZ			RS-232	RS-232		RS-485	RS-485		RS-232	RS-232
COM3			_	3-wire		_	2-wire			3-wire
001015				RS-232			RS-485			RS-232
Self-Tuner - Yes, automatic RS-485 direction control										
UART		16c550 or comp	atible							
COM Port Format										
Baud Rate		115200 bps Max	ς.							
Data Bit 5, 6, 7, 8										
Parity		None, Odd, Even, Mark, Space								
Stop Bit		1, 2								
Power										
Power Input	PoE	1EEE 802.3af, Cl	ass 1							
•	DC jack	+ 12 ~ 48 Vpc								
Power Consumptio	n	0.05 A @ 24 Voc								
Connector		Male DB-9 x 1 10-Pin Removable Terminal Block x 1								
Mechanical		-								
Flammability		Fire Retardant N		,						
Dimensions (W x H x D) (mm) 52 x 90 x 27 52 x 95 x 27										
Installation		DIN-Rail mounti	ng							
Environment										
Operating Tempera		-25 °C ~ +75 °C	-							
Storage Temperatu	re	-30 °C ~ +80 °C	-							
Humidity		10 ~ 90% RH, r	non-condensi	ng						
3-wire RS-232: Rxl 5-wire RS-232: Rxl 2-wire RS-485: DA 4-wire RS-422: Txl	D, TxD, CTS, TA+, DATA-,	RTS, GND (Non-isolate	ed)							

Pin Assignments

tDS-712/tGW-712

09 N/A

08 CTS1

07 RTS1

03 TxD1 02 RxD1 01 N/A

N/A

GND DB-9) 04

N/A

COM1 06

(Male 05

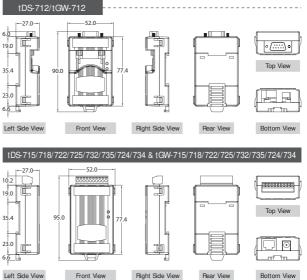
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$ \begin{array}{ c c c c } \textbf{IDS} - \textbf{722} + \textbf{CMV} - \textbf{722} \\ \hline \textbf{IDS} - \textbf{722} + \textbf{CMV} - \textbf{722} \\ \hline \textbf{O9} & \textbf{CTS2} \\ 09 & \textbf{CTS2} \\ 09 & \textbf{CTS2} \\ 09 & \textbf{CTS2} \\ 07 & \textbf{RxD2} \\ 06 & \textbf{RxD2} \\ 06 & \textbf{RxD2} \\ 06 & \textbf{RxD2} \\ 06 & \textbf{RxD1} \\ 06 & \textbf{RxD1} \\ 00 & \textbf{CTS1} \\ 00 & \textbf{CTS2} \\ 0$			7			
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$ \begin{array}{c c c c c c c } 06 & TxD2 & 0.0$	COM2	08	RTS2	COM3	08	RxD3
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		07	RxD2		07	TxD3
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		06	TxD2		06	GND
$\begin{array}{c c c c c c c c } \hline COM1 & 0.3 & RTS1 \\ 0.2 & RvD1 \\ 0.1 & TxD1 \\ \hline 0.2 & RvD1 \\ 0.1 & TxD1 \\ \hline 0.2 & RvD1 \\ 0.1 & TxD1 \\ \hline 0.2 & RvD1 \\ 0.1 & RvD1 \\ 0.0 & RvA \\ 0.0 & RvD1 \\$		05	GND	COM2	05	RxD2
02 RxD1 00M1 02 RxD1 01 TxD1 1 TxD1 105-715/1GM-715 105-725/1GM-715 105-725/1GM-725 10 F.G. 09 N/A 08 N/A 06 N/A 06 N/A 06 N/A 07 N/A 07 N/A 08 N/A 06 N/A 07 N/A 06 N/A 08 N/A 06 N/A 09 N/A 06 N/A 01 01 01 01 01 02 100-10 01 01 10 10 10 F.G. 09 N/A 08 N/A 09 GND 001 10 11 11 10 F.G. 10 F.G. 09 N/A 00 GND 001 10 11 11 11 10 <		04	CTS1		04	TxD2
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IDS-715/IGW-715 IDS-725/IGW-725 10 FG. 10 FG. 09 N/A 09 N/A 08 N/A 08 N/A 06 N/A 08 N/A 06 N/A 06 GND 06 N/A 06 GND 07 N/A 07 N/A 08 N/A 08 N/A 06 N/A 06 GND R5422 01 FG. 03 GND 09 GND 0011 101-101 01 101+ 10 FG. 00 GND 001 101+ 10 FG. 09 N/A 06 FAD1 00 GND 6 GND 06 FAD1 00 GND 6 FAD1 7 FAD1 00 GND 6 FAD1 01 FG. 01 D1 D1		02	RxD1	COM1	02	RxD1
10 FG. 09 N/A 08 N/A 08 N/A 08 N/A 07 N/A 06 N/A 06 N/A 05 GND 04 RxD1- 02 TxD1-N 03 GND 04 RxD1- 07 N/A 08 RX4 07 TxD-TxD- 08 RX4 07 TxD-TxD- 08 RX4 09 GND 09 GND 06 GND 07 D3+ 70 BS-22 08 GND 06 GND 07 D3+ 66 GND 07 TxD1 08 CN2 09 GND 01 FG. 02 D1- 03 GN	_	01	TxD1		01	TxD1
09 N/A 09 N/A 08 N/A 08 N/A 07 N/A 07 N/A 06 N/A 07 N/A 06 N/A 06 GND 06 N/A 06 GND 07 N/A 07 N/A 06 GND 0002 05 D2- 04 RxD1+ 04 02+ 03 GND 07 T01-D1- 0011 01 10++ 01 FG. 09 GND 60 N/A 08 GND 09 N/A 00 GND 60 ND+ 09 N/A 09 N/A 00 GND 60 N/A 00 N/A 00 N/A 00 GND 60 N/A 00 N/A 00 N/A 00 GND 60 6/ND 05 R/D 06 N/A	tDS-7	15/t0	GW-715	tDS-7	25/t	GW-725
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		10	F.G.		10	F.G.
07 N/A 07 N/A 06 N/A 06 S/D 06 S/D 00/2 06 S/D 8450 04 RxD1+ 06 S/D 03 RxD1+ 03 S/D1+ 03 S/D1+ 02 101-01+ 01 01 01+ 01 01+ 10 FG. 10 FG. 09 S/D1+ 09 S/D1+ 03 S/D1+D+ 00 10 D1+ 01 D1+ 01 D1+ 10 FG. 10 FG. 09 S/D1+ 00 07 N/A 06 GND 07 D3+ 08 S/D1+ 08 S/D1+ 01 FG. 01 TD1+D+ 01 TD1+ TD1+ TD1+ </td <td></td> <td>09</td> <td>N/A</td> <td></td> <td>09</td> <td>N/A</td>		09	N/A		09	N/A
06 N/A 06/5 GND 00M2 05/5 C2- 04 R×D1- 03 GND 03 GND 02 TxD1-D1- 04 R×D1- 03 GND 02 TxD1-D1- 00M1 02 D1- 01 D1+ 105-735/tGW-735 105-735/tGW-735 105-735/tGW-735 105-735/tGW-735 105-735/tGW-735 00 03 03 04 02 10 FG. 09 GND 05 FAD1 06 FS232 07 FxD1 06 GND 6 SND 65 GND 06 FXD1 00 02 D1- 01 D6 FXD1 02 FxD1 01 D1 D1- FS232 05 GND 02 FxD1 02 D1- 01 D1- 01 TxD1 02 TxD1 03 GND FS422 07 FXD3 03 <		08	N/A		08	N/A
BS-485 RS-422 OS CNU OOM2 05 D2- 04 RVD1- 03 COUL 04 D2+ 04 D3- 04 D2+ 04 D3- 04 D4+ 04		07	N/A		07	N/A
R445/ R445/ 03 04/ r50 RxD1+ r50 04/ r50 RxD1+ r50 04/ r50 RxD1+ r50 04/ r50 RxD1+ r50 03/ r50 RxD1+ r50 03/ r50 RxD1+ r50 03/ r50 RxD1+ r50 03/ r50 RxD1+ r50 03/ r50 RxD1+ r50 02/ r50 10/ r50 7/ r50 7/ r50 </td <td></td> <td>06</td> <td>N/A</td> <td></td> <td>06</td> <td>GND</td>		06	N/A		06	GND
RS-482 RS-422 0.3 R-M1+ 0.1 0.3 CMD1+ 0.1 0.4 </td <td></td> <td>05</td> <td>GND</td> <td>00M2</td> <td>05</td> <td>D2-</td>		05	GND	00M2	05	D2-
R5422 03 FxD1+ 03 GXD2 01 T00+DF 004 02 D1+ 10 FG 01 101+DF 01 101+ 10 FG 10 FG 09 N/A 00 GND 09 N/A 06 T07 PXA 06 GND 06 TAD1+DF 06 FXD1 FG 07 FXD1 06 GND 05 D2+ 07 FXD1 06 FXD1 06 FXD1 07 FXD1 07 FXD1 07 FXD1 06 FXD1 07 FXD1 07 FXD1 06 FXD1 07 FXD1+D 07 FXD1+D 07 <td< td=""><td></td><td>04</td><td>RxD1-</td><td></td><td>04</td><td>D2+</td></td<>		04	RxD1-		04	D2+
02 Tol·IDI- 101 COM1 02 D1- 01 01 Tol·IDI- 01 IDI- 01 D1- 01 D1- 01 D1- 01 105:735/1GW-735 IDS-718/1GW-718 IDS-718/1GW-718 09 GND P3- 00 N/A 09 GND P5-22 07 FxD1 06 GND P5-22 07 FxD1 03 GND P5-42 07 FxD1 03 GND P5-42 03 FxD1+ 03 GND P5-42 03 FxD1+ 02 D1-+ 01 Tol·ID+ 01 Tol·ID+ 10 F.G. 10 F.G. 03 FxD1+ 03 GND 04 PXD2 05 FxD2 04 TXD2 06 FxD2 07 FxD2 03 GND 04 TXD2 05 FxD2 03 GND 03 GND 03 GND		03	RxD1+		03	GND
IDS-735/1GM-735 IDS-715/1GM-735 10 F.G. 10 F.G. 09 GND 9 N/A 07 D3+ 08 GND 08 MD 06 GND 06 TxD1 06 MD 06 GND 05 GND 06 TxD1 00 GND 7 FxD1+ 07 FxD1+ 03 GND F6422 03 FxD1+ 01 D1+ FG42 03 FxD1+ 01 D1+ 01 FG. 01 T0+D+ 10 FG. 09 GND 09 GND 03 GND 09 GND 09 GND 04 TXD2 00 GN FG. 09 GND 05 FxD2 OCM3 08 FxD2 07 TxD3 05 FxD2 OCM2 05 FxD2 04 TxD2 03 <td>N0-422</td> <td>02</td> <td>TxD1-/D1-</td> <td>COM1</td> <td>02</td> <td>D1-</td>	N0-422	02	TxD1-/D1-	COM1	02	D1-
10 F.G. 10 F.G. 09 GND 09 N/A 001 001 01 10 F.G. 07 D34 R522 07 F.VD1 06 GND 05 D2- 05 GND 05 GND 03 GND R5425 03 Fk212 03 Fk214 03 GND FK422 03 Fk214 03 Fk214 01 D1+ D5 GND 01 Tb1+D1+ D2 D1+ 01 FGL 01 Tb1+D1+ D2 TD2+ GR 01 TD1+D1+ 01 Tb1+D1+ D3 FK12 COM3 08 FK02 07 TXD3 C0M2 06 GND 06 GND 06 FND2 C0M2 05 Fk22 03 GRD2 04 TN22 03 GND C0M1 02 D1+ </td <td></td> <td>01</td> <td>TxD1+/D1+</td> <td></td> <td>01</td> <td>D1+</td>		01	TxD1+/D1+		01	D1+
09 GND 09 MA COM3 08 D3- 7 D4+ 78232 08 GND 06 GND 07 D3+ 78232 07 PAD1 06 GND 07 D4- 78232 06 TAD1 04 D2+ 66 NAD1+ 02 D4 78453 04 RxD1+ 03 GND 78453 03 RAD1+ 02 Ta0+D0+ 01 D1+ 105 777 TAD3 78453 08 RD3- 07 RTS2 COM3 08 RD3- 07 RD3- 07 RTS2 COM4 08 RD3- 07 RD3- 07 RTS2 COM2 06 GND 08 RD3- 07 RD3- 07 RTS2 COM2 06 SND1- 04 RD2- 04 RD2- 03 GND 04 TAD2 0	tDS-7	tDS-735/tGW-735		tDS-7	18/t	GW-718
COM3 0.8 D3- PS232 0.8 GND 07 D3+ PS232 07 FxD1 06 GND PS432 07 FxD1 06 SND PS452 07 FxD1 06 D2- PS452 07 FxD1 07 D2- PS452 07 FxD1 03 GND PS452 03 FxD1+ 02 D1- 01 FG1- 02 T01+D2 10 FG 10 TG1 TG1+D2 T01-D3 T01-D3 10 FG COM3 08 FXD2 01 T01+D3 08 CTS2 COM4 08 FXD3 06 GND 07 TXD3 COM2 06 GND 06 GND 03 GND COM1 02 D1- COM1 03 GND		10	F.G.		10	F.G.
07 D3+ PS-22 07 PA:D1 06 GND 06 TxD1 06 TxD1 04 D2- 06 FXD1 06 TxD1 04 D2+ PA		09	GND		09	N/A
06 CM 07 FXD1 06 6K00 6 7x01 04 5 52 04 6 7x01 03 GND 78,485 04 Fx01+ 01 02+ 78,485 02 10/+ 01/+ 01 01 01+ 01 10/+ 01/+ 01/+ 01/+ 10 FG 10 FG 10 FG 09 GND 09 GND 09 GND 09 GND 09 GND 09 GND 00 7 TX03 00 10/+ D1/+ 01/+ D1/+ 01/+ D1/+ 01/+ D1/+ D	COM3	08	D3-		08	GND
COM2 05 D2- 04 PA 03 GND FS-485 04 PkO1- 03 GND FS-485 02 fb/40 01 D1+ FS-485 02 fb/10- 10 F.G. 10 F.G. 10 F.G. 09 GND 08 CTS2 COM3 08 RD3 07 FTS2 COM4 06 GND 04 FkD2 04 TxD2 OCM2 06 GND 04 TxD2 03 GND 03 GND 03 GND 03 D1+ COM1 02 D1- OCM1 03 GND		07	D3+	RS-232	07	RxD1
OMR2 04 D2+ R5455 A H RD1+ 03 GND R5455 A RoU1+ B RoU1+		06	GND		06	TxD1
03 GND FS-485 PA 03 FX-D1+ PA 01	COM2	05	D2-		05	GND
03 GND 85-422 03 FACH+ COM1 02 D1+ 02 T0H-01 10 D1+ 10 FG. 10 T0H-01 10 FG. 10 FG. 10 FG. 09 GND 08 CTS2 COM3 08 RND3 07 FTS2 COM3 08 RND3 07 TND3 04 TXD2 OCM2 06 GND 06 GND 03 GND 03 GND 03 GND 03 GND 03 D1+ COM1 02 D1- COM1 02 D1-		04			04	RxD1-
COM1 02 D1- 01 02 10- 01 01 101- 01 01 101- 01 101- 01 <t< td=""><td></td><td>03</td><td>GND</td><td></td><td>03</td><td>RxD1+</td></t<>		03	GND		03	RxD1+
IDS-724/1GW-724 IDS-734/IGW-734 10 F.G. 10 F.G. 09 GND 09 GND 08 CTS2 07 TXD3 004 GND 06 GND 05 RxD2 07 TXD2 04 TXD2 04 TXD2 03 GND 03 GND 03 GND 03 GND 03 D1- COM1 02 D1-	COM1	02	D1-		02	TxD1-/D1-
10 F.G. 10 F.G. 09 GND 09 GND 08 CTS2 COM3 08 RND3 07 FTS2 O7 TX03 06 GND 06 GND 05 Fx02 06 GND 04 TXD2 04 TXD2 03 GND 03 GND COM1 02 D1- COM1 02 D1-		01	D1+		01	TxD1+/D1+
09 GND 09 GND 08 CTS2 COM3 88 Fx03 07 RTS2 07 TxD3 06 GND 06 GND 05 Fx02 COM2 05 Fx02 04 TxD2 04 TxD2 03 GND 03 GND COM1 02 D1 COM1 02 D1	tDS-7	24/t(GW-724	tDS-7	34/ti	GW-734
08 CTS2 COM3 08 FxD3 07 RTS2 07 TxD3 06 GND 06 GND 06 RxD2 06 SRD2 07 TxD3 05 RxD2 03 GND 04 TxD2 03 GND 03 GND 04 TxD2 03 GND 03 GND 03 GND 04 TxD2 03 GND		10	F.G.		10	F.G.
07 RTS2 07 TxD3 COM2 06 GND 06 GND 05 RxD2 COM2 05 RxD2 04 TxD2 04 TxD2 03 GND 03 GND COM1 02 D1 COM1 02 D1		09	GND		09	GND
COM2 06 GND 06 GND 05 RxD2 COM2 05 RxD2 04 TxD2 04 TxD2 03 GND 03 GND COM1 02 D1- COM1 02 D1-		08	CTS2	COM3	08	RxD3
05 RxD2 COM2 05 RxD2 04 TxD2 04 TxD2 03 GND 03 GND COM1 02 D1- COM1 02 D1-		07	RTS2		07	TxD3
03 FADL 04m 03 FADL 04 TxD2 04 TxD2 03 GND 03 GND COM1 02 D1- COM1 02 D1-	COM2	06	GND		06	GND
03 GND 03 GND COM1 02 D1- COM1 02 D1-		05	RxD2	COM2	05	RxD2
COM1 02 D1- COM1 02 D1-		04	TxD2		04	TxD2
		03	GND		03	GND
01 D1+ 01 D1+	COM1	02	D1-	COM1	02	D1-
		01	D1+		01	D1+

Dimensions (Unit: mm)



Ordering Information _

tDS-700 Series	
105-712 CR	Tiny Device Server with PoE and 1 RS-232 Port (RoHS)
1DS-722 CR	Tiny Device Server with PoE and 2 RS-232 Ports (RoHS)
1DS-732 CR	Tiny Device Server with PoE and 3 RS-232 Ports (RoHS)
10S-715 CR	Tiny Device Server with PoE and 1 RS-422/485 Port (RoHS)
1DS-725 CR	Tiny Device Server with PoE and 2 RS-485 Ports (RoHS)
1DS-735 CR	Tiny Device Server with PoE and 3 RS-485 Ports (RoHS)
105-718 CR	Tiny Device Server with PoE and 1 RS-232/422/485 Port (RoHS)
tDS-724 CR	Tiny Device Server with PoE, 1 RS-485 and 1 RS-232 Ports (RoHS)
tDS-734 CR	Tiny Device Server with PoE, 1 RS-485 and 2 RS-232 Ports (RoHS)
tGW-700 Series	
1GW-712 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 1 RS-232 Port (RoHS)
1GW-722 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 2 RS-232 Ports (RoHS)
tGW-732 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 3 RS-232 Ports (RoHS)
1GW-715 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 1 RS-422/485 (RoHS)
tGW-725 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 2 RS-485 Ports (RoHS)
tGW-735 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 3 RS-485 Ports (RoHS)
1GW-718 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE and 1 RS-232/422/485 Port
10W-710 Ch	(RoHS)
tGW-724 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE, 1 RS-485 and 1 RS-232 Ports
5001 100V-724 Ch	(RoHS)
tGW-734 CR	Tiny Modbus/TCP to RTU/ASCII Gateway with PoE, 1 RS-485 and 2 RS-232 Ports
2 500 100V-734 Ch	(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	3-9 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-KA52E CB	24V/1.04A, 25 W Power Supply with Din-Rail Mounting					
DIN-104021 CIT	(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 Voc Input (RoHS)					