tGW-700 Series

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)

Available soon

tGW-700 Series

Tiny Modbus/TCP to RTU/ASCII gateway with PoE and RS-232/422/485

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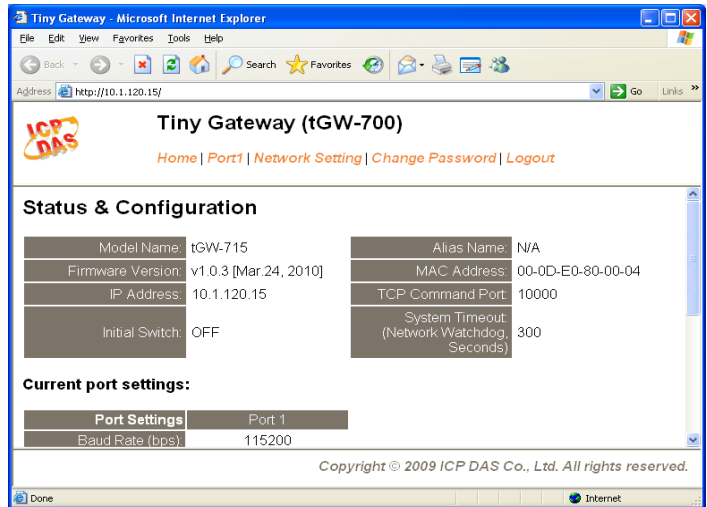
The tGW-700 module features a powerful 32-bit MCU to enable efficient handling of network traffic, and also has a built-in web server that provides an intuitive web management interface that allows users to modify the configuration of the module, including the DHCP/Static IP, the gateway/mask settings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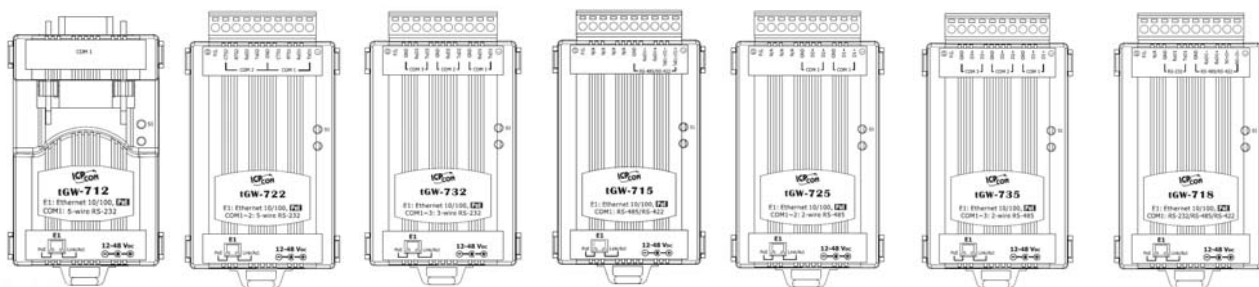
Applications

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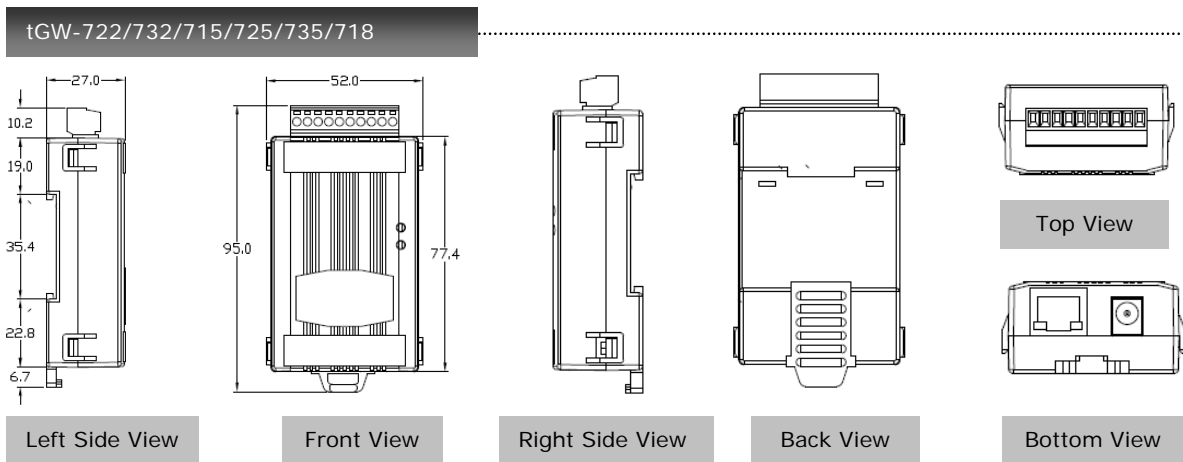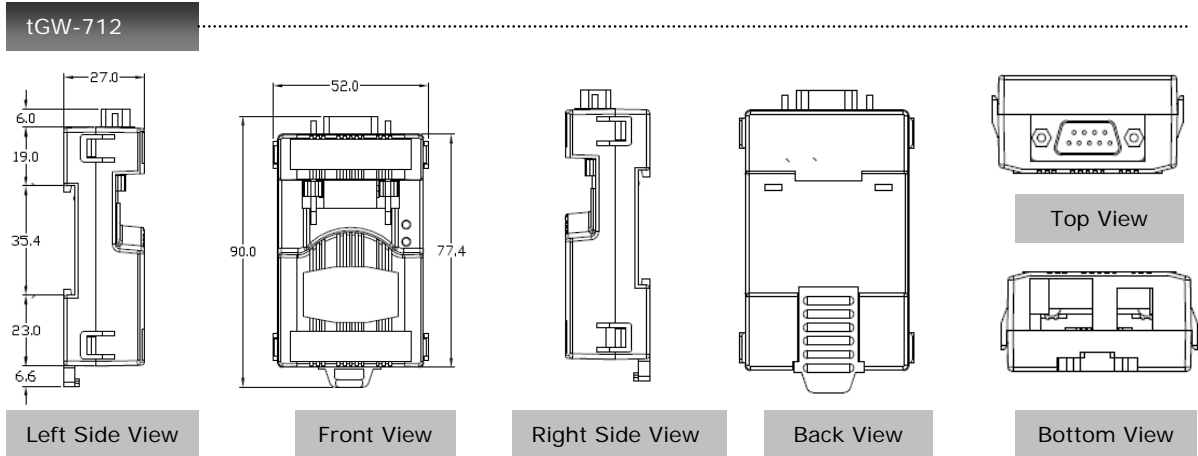- Remote Diagnosis and Management

Specifications

Model	tGW-712	tGW-722	tGW-732	tGW-715	tGW-725	tGW-735	tGW-718
System							
CPU	32-bit ARM						
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-wireRS-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					
Dimensions (WxHxD) (mm)	52 x 90 x 27	52 x 95 x 27					
Installation	DIN-Rail Mounting						
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: RxD, TxD, GND (Non-isolated)
5-Wire RS-232: RxD, TxD, CTS, RTS, GND (No-isolated)
2-Wire RS-485: DATA+, DATA-, GND (Non-isolated)
4-Wire RS-422: TxD+, TxD-, RxD+, RxD-, GND (Non-islated)

Pin Assignments

tDS-712			tDS-722			tDS-732			tDS-715			tDS-725			tDS-735			tDS-718		
COM1 (Male DB-9)	9	N/A	COM2	10	F.G.	COM3	10	F.G.	RS-485/RS-422	10	F.G.	COM2	10	F.G.	COM3	10	F.G.	RS-232	10	F.G.
	8	CTS1		9	CTS2		9	GND		9	N/A		9	N/A		9	GND		9	N/A
	7	RTS1		8	RTS2		8	RxD3		8	N/A		8	N/A		8	D3-		8	GND
	6	N/A		7	RxD2		7	TxD3		7	N/A		7	N/A		7	D3+		7	RxD1
	5	GND		6	TxD2	COM2	6	GND		6	N/A		6	GND		6	GND		6	TxD1
	4	N/A		5	GND		5	RxD2		5	GND	COM2	5	D2-	COM2	5	D2-	RS-485/RS-422	5	GND
	3	TxD1		4	CTS1		4	TxD2		4	RxD1-		4	D2+		4	D2+		4	RxD1-
	2	RxD1	COM1	3	RTS1		3	GND		3	RxD1+		3	GND		3	GND		3	RxD1+
	1	N/A		2	RxD1	COM1	2	RxD1		2	TxD1-/ D1-	COM1	2	D1-	COM1	2	D1-		2	TxD1-/ D1-
				1	TxD1		1	TxD1		1	TxD1+/ D1+		1	D1+		1	D1+		1	TxD1+/ D1+

☑ Dimensions (Unit:mm)

tGW-712

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

Left Side View: 27.0, 6.0, 19.0, 35.4, 23.0, 6.6
Front View: 52.0, 90.0, 77.4
Top View
Bottom View

tGW-722/732/715/725/735/718

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

Left Side View: 27.0, 10.2, 19.0, 35.4, 22.8, 6.7
Front View: 52.0, 95.0, 77.4
Top View
Bottom View

☑ Ordering Information

tGW-712 CR	Tiny Modbus/TCP to RTU/ASCII gateway with PoE and 1 RS-232 Port (RoHS)
tGW-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)
tGW-715 CR	Tiny Modbus/TCP to RTU/ASCII gateway with PoE and 1 RS-422/485 Port (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)
tGW-718 CR	Tiny Modbus/TCP to RTU/ASCII gateway 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, 1 M
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)
Available soon FRA05-S12-SU	12 V/0.58 A (max) Power Supply.

Available Soon !!

CA-0915   CA-0910F   CA-0910N   CA-PC09F   NS-205 CR   NS-205PSE CR   FRA05-S12-SU