

## tGW-700 Series

### Tiny Modbus/TCP to RTU/ASCII Gateway

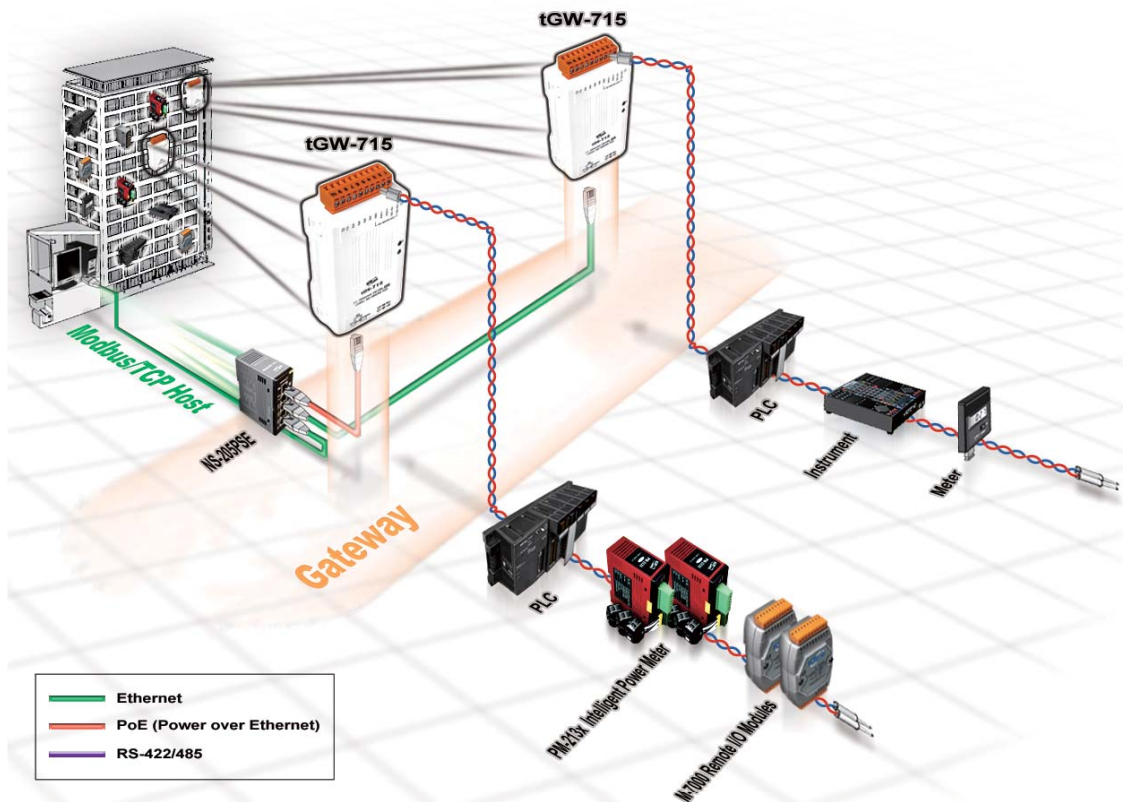


### Features ▶▶▶

- Supports Modbus TCP/UDP master and slave
- Supports Modbus RTU/ASCII master and slave
- Max. TCP connections (masters) per serial port: 32 (tGW-71x), 16 (tGW-72x) or 10 (tGW-73x)
- Read-cache ensures faster Modbus TCP/UDP response
- 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)
- Redundant power inputs: PoE and DC jack
- 10/100 Base-TX Ethernet, RJ-45 x 1 (Auto-negotiating, auto MDI/MDIX, LED Indicators)
- Allows automatic RS-485 direction control
- 3000 V<sub>DC</sub> isolation and +/-4 kV ESD protection for i versions
- Male DB-9 or terminal block connector for easy wiring
- Tiny form-factor and low power consumption
- RoHS compliant & no Halogen
- Cost-effective Modbus Gateway

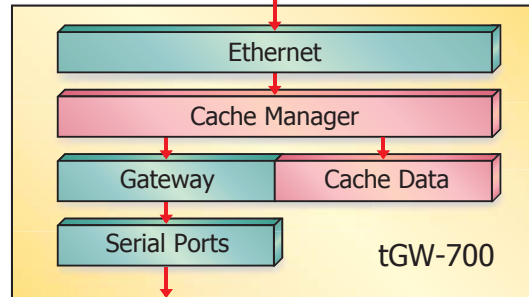
### Introduction

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.

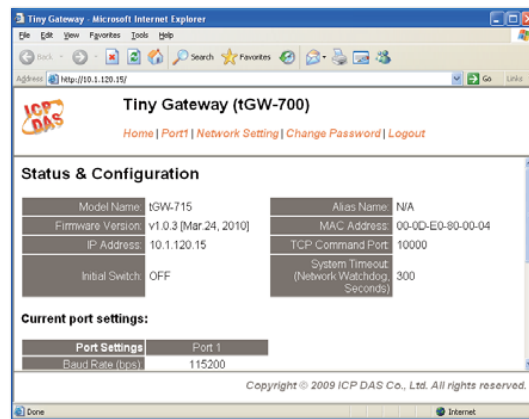


The tGW-700 module is a Modbus gateway that enables a Modbus TCP/UDP host to communicate with serial Modbus RTU/ASCII devices through an Ethernet network, and eliminates the cable length limitation of legacy serial communication devices. The module can be used to create a pair-connection application (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.

The maximum number of TCP connections for each serial port is up to 32 for tGW-71x, 16 for tGW-72x and 10 for tGW-73x. This allows multiple masters accessing slave devices on the same serial port. The new read-cache function is used to store previous requests and responses in the memory buffer of the tGW-700 module. When other HMI/SCADA master controllers send the same requests to the same RTU slave device, the cached response is returned immediately. This feature dramatically reduces the loading on the serial port communication, ensures faster TCP responses, and improves the stability of the entire system.



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, and minimizes configuration errors caused by manual setting. 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 energyefficient equipment can have a positive impact on maintaining a green environment.

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.

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

### Applications

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

