

DASTEC Corporation  
457A Carlisle Drive  
Herndon, VA 20170 USA  
Tel: 1-703-709-0515  
Fax: 1-703-709-0985  
www.dastec.com

## **MODBUS/TCP Ethernet Communication Interface API**

The DASTEC Corporation **MODBUS/TCP Ethernet Communication Interface API** allows the user to implement bi-directional communications to exchange data between applications running on a Windows/WinCE-based system with other peer devices supporting the MODBUS/TCP Ethernet protocol. The peer devices can be Modicon devices, other host computers or even other system applications using the API.

The **MODBUS/TCP Ethernet Communication Interface API** enables a system to act as a client to other Modbus peers, initiating read and write operations on behalf of the system applications. The API also allows the system to emulate a Modicon PLC to respond to read and write requests and thus acts as a “virtual PLC” to other MODBUS/TCP peers. The API is available for different Windows/WinCE-based systems/platforms and can be used with C/C++ or Visual Basic.

The API consists of two component functionalities, client side and server side. The client side functionality is implemented with a single API DLL. Server side functionality is implemented with a DLL/executable pair. Together these components manage all aspects of the protocol and data exchange including responding to peers with proper acknowledgements, error/success codes and protocol data byte ordering. The system application need only to deal with the data values exchanged in native byte order. The user can employ either the API’s client, server or both functionalities with minimal code implementation.

The **MODBUS/TCP Ethernet Communication Interface API** supports the following MODBUS/TCP protocol function codes:

- 1** - Read Coil Status
- 2** - Read Input Status
- 3** - Read Holding Registers
- 4** - Read Input Registers
- 5** - Force Single Coil
- 6** - Preset Single Register
- 7** - Read Exception Status
- 15** - Force Multiple Coils
- 16** - Preset Multiple Registers

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## **Client API Functionality**

To exchange data with MODBUS/TCP peers, a system application can initiate read and/or write operation(s) to peers by simply calling the client DLL functions. The functions include the ability to create handle(s) for the peer device(s) and then using those handle(s) to call DLL read and write functions. Operation results are returned directly to the calling application, as is data in the case of read operations.

### Client API Supports

- Defining of multiple device(s) representing MODBUS/TCP peers.
- Functions to read data from and write data to defined device(s).
- Coil and Discrete Input data can be read via as packed bits or as bytes.
- Coil data can be written via as packed bits or as bytes.
- Multiple user applications can use the client API simultaneously.

## **Server API Functionality**

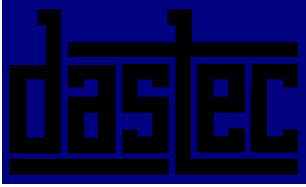
Using the server executable program provided as part of the API, a system can appear as a MODBUS/TCP device (Modicon PLC) on the network. By managing all MODBUS/TCP communication operations, the server executable receives and responds to both read and write requests from peer devices. Data written by peers is stored into separate databases maintained by the server executable for each Modbus data type (Coil, Discrete Input, Input Register, Holding Register and Exception Status). The data received is stored in the byte order appropriate for the system's processor. The data for read requests received from peers is retrieved and returned from these databases as well.

No user programming is required for the system to act in this server mode. Peers can read and write to the system as if it were a Modicon PLC with no user application programs running. Applications have access to the server's databases indirectly through specific API DLL functions calls or directly via shared memory access. In this way, the user applications obtain data written from peers and can update the system's "virtual PLC's" data registers, coils, etc. so that peers can retrieve it.

### Server API Supports:

- Modbus Data Types: Coil, Discrete Input, Input Register, Holding Register and Exception Status. A separate database is maintained for each data type.
- Adjustable database sizes (except Exception Status)
- Access to databases via function calls and/or through shared memory.
- Multiple user applications can access the server databases simultaneously.

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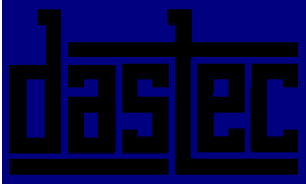


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## Specifications:

- Supported Platform:
  - Any computer running Windows 98/NT/2000/XP operating system
  - WinCE
    - Intelligent Instrumentation EDAS CE and LanPoint CE
- Supported MODBUS/TCP protocol function codes:
  - 1 - Read Coil Status (Maximum 2000 Coils)
  - 2 - Read Input Status (Maximum 2000 Discrete Inputs)
  - 3 - Read Holding Registers (Maximum 125 Holding Registers)
  - 4 - Read Input Registers (Maximum 125 Input Registers)
  - 5 - Force Single Coil
  - 6 - Preset Single Register
  - 7 - Read Exception Status
  - 15 - Force Multiple Coils (Maximum 800 Coils)
  - 16 - Preset Multiple Registers (Maximum 100 Registers)
- MODBUS/TCP Ethernet Gateway Sub-Device Addressing
- Supports multiple, multi-thread user applications simultaneously
- Client API Supports
  - Defining of multiple device(s) representing MODBUS/TCP peers.
  - Read data from and write data to defined device(s) via different function calls.
  - Coil and Discrete Input data can be exchanged as packed bits or as bytes.
  - Multiple user applications can use the client API simultaneously.
- Server API Supports:
  - Modbus Data Types: Coil, Discrete Input, Input Register, Holding Register and Exception Status.
  - Separate databases maintained for each data type.
  - Adjustable database sizes (except Exception Status): 0 - 65536 (1000 default).
  - Access to databases by multiple applications.
  - Access to databases via function calls or through shared memory.

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## Ordering Information:

Product Name: MODBUS/TCP Ethernet Communication Interface API

Platform Part Numbers:

- Computer running Windows 98/NT/2000/XP  
Part No: WinPC-MTCPAPI
- WinCE
  - Intelligent Instrumentation EDAS CE and LanPoint CE  
Part No: IIIWinCE-MTCPAPI

Software package includes 3-1/2" diskette and User's manual (electronic image)

*Contact DASTEC about other supported platforms or to inquire about supporting other platforms.*

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