

Modicon

Modicon (TCP) Driver

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- This manual explains how to connect the target machine with other manufacturer devices. For information about how to use the Pro-Designer software, please refer to the Pro-Designer Online Help.
- The types of target machines that are compatible with Pro-Designer depends on the version of Pro-Designer. For information about the compatibility of target machines, please refer to the Pro-Designer Online Help.

1 System Structure

The following table describes system setups, which have been tested, that connect the target machine to Modbus Series PLCs. Use these as the basis for connecting your own system.

Series	CPU	Ethernet Module
Modbus	Quantum 140 CPU 113 02	Quantum 140 N0E 771 00 Quantum 140 N0E 771 10
	Quantum 140 CPU 113 03	
	Quantum 140 CPU 434 12A	
	Quantum 140 CPU 534 14A	
	Momentum 171 CCS 960 20	Built-in Ethernet Port
	Momentum 171 CCS 960 30	
	Momentum 171 CCC 980 20	
	Momentum 171 CCC 980 30	

2 Supported Device Addresses

The following table lists the device address ranges you can enter from the [Device Address keypad](#). Use the [Protocol Configuration](#) dialog box to map the device addresses supported on your Modbus PLC to the device types listed in this table.

For actual device address ranges supported by the PLC, refer to the corresponding PLC manual.

Device	Bit Address	Word Address	16 bit	32 bit
Coils (C)	00001-65536	—	L/H ^{*3}	L/H ^{*3}
Discrete Inputs (DI) ^{*1}	00001-65536	—		
Input Registers (IR) ^{*1*2}	00001:00-65536:15	00001-65536		
Holding Registers (HR) ^{*2}	00001:00-65536:15	00001-65536		

*1 Read-only.

*2 Read-modify-write. When you write to one of these bit addresses, the target machine reads the entire word address, sets the defined bit, then returns the new word address to the PLC. If the ladder program writes data to this word address during the bit read/write process, the resulting data may be incorrect.

*3 16-bit and 32-bit data, High and Low, refer to data as defined in the following examples.

Byte	16 bit				Word	32 bit			
0	7	...	0	L (Low)	0	15	...	0	L (Low)
1	15	...	8	H (High)	1	31	...	16	H (High)

2.1 Device Address Example

The following illustrates how to configure Modbus PLC device addresses.

In this example, the PLC uses these device addresses.

Device	Address
Coils (C)	000001
Discrete Inputs (DI)	100001
Input Registers (IR)	300001
Holding Registers (HR)	400001

To transfer this information to the Pro-Designer Modbus protocol, configure the values in the Protocol Configuration dialog box as shown below.



These settings result in the following range of device addresses that you can use for Pro-Designer variables.

Coils (C): 000001 to 065536
 Discrete Inputs (DI): 100001 to 165536
 Input Registers (IR): 300001 to 365536
 Holding Registers (HR): 400001 to 465536

3 Consecutive Device Addresses

The following table lists the maximum number of consecutive addresses that can be read by each PLC. Refer to this table when using block transfers.

MEMO

- To speed up data communication, use consecutive device addresses on the same panel screen.
- The following situations increase the number of times that the device is read, and reduces the data communication speed between the target machine and the PLC:
 - when the number of consecutive addresses exceeds the maximum
 - when an address is designated for division
 - when different device types are used

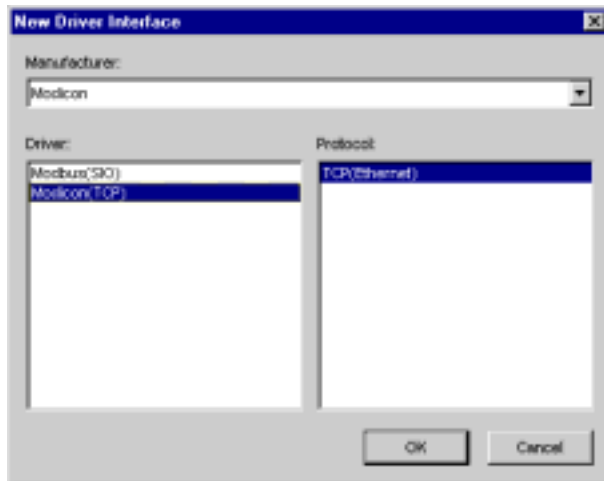
Device	Max. Consecutive Addresses	Gap Span
Coil (C)	512 bits	255 bits
Discrete Input (DI)		
Input Register (IR)	125 words	48 words
Holding Register (HR)		

4 I/O Manager Configuration

The driver and protocol, which enable communication between the target machine and the PLC, depends on the PLC type.

MEMO

For information on how to display the [New Driver Interface] dialog box, see the online help.



5 Protocol Configuration

To set up details about the communication process between the target machine and the PLC, use the [Protocol Configuration] dialog box.

MEMO

For information on how to display the [Protocol Configuration] dialog box, see the online help.



IP address

Enter the PLC IP address.

PLC No.

The PLC No. is not required for Ethernet communication.

Start Address

PLC manufacturers may use different address ranges for their particular PLCs. Use Start Addresses to configure the addresses supported on your Modbus PLC.

Coils

Defines the start address for Coils as supported on your PLC. Coils begin from this start address and end at the Discrete Inputs start address (or Coils Start Address + 65535).

Discrete Inputs

Defines the start address for Discrete Inputs as supported on your PLC. Discrete Inputs begin from this start address and end at the Input Registers start address (or Discrete Inputs Start Address + 65535).

Input Registers

Defines the start address for Input Registers as supported on your PLC. Input Registers begin from this start address and end at the Holding Registers start address (or Input Registers Start Address + 65535).

Holding Registers

Defines the start address for Holding Registers as supported on your PLC. Holding Registers begin from this start address and end at the start address + 65535.

6 Device Address Configuration

To set up a PLC variable in the Variable List, use the Device Address Keypad from the variable properties.

See Section 2 – *Supported Device Addresses*.

MEMO

For information on how to display the Device Address Keypad, see the online help.

**Device**

Lists the PLC's discrete and word device types.

Address

Enter the device address for the PLC variable. The keypad ensures that you enter the correct format for bit and word devices.

MEMO

If instead of using the device address keypad to enter the device address, you type the address directly in the Property Inspector, you must also type the device (C, DI, IR, or HR). E.g. "HR400001"