

Magelis XBT-G Modbus TCP/IP driver

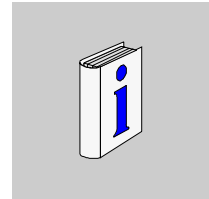
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About the Book



At a Glance

Document Scope This documentation presents Modbus TCP/IP driver for Magelis XBT-G.

Related Documents

Title of Documentation	Reference Number
Vijeo-Designer Tutorial	VJDUSE00010E

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Modbus TCP/IP Driver



At a Glance

Subject of this chapter

This chapter explains how to connect the target machine with Ethernet TCP/IP equipment. For information about how to use the Vijeo-Designer software, please refer to the Vijeo-Designer Online Help.

The types of target machines that are compatible with Vijeo-Designer depends on the version of Vijeo-Designer. For information about the compatibility of target machines, please refer to the Vijeo-Designer Online Help.

Note: target machines mean Magelis XBT-G products.

What's in this Chapter?

This chapter contains the following topics:

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System Structure

Overview

The following table describes system setup for connecting your target machine to Schneider Electric Modbus equipment.

Connection

The following table describes the basic system setup for connecting the target machine to Schneider Modbus equipment

Series	CPU	Ethernet Module
Modbus	Any Modbus Equipment	Ethernet Module or Built-in Ethernet Port

Supported Equipment Addresses

Overview

The following table lists the equipment address ranges you can enter from the **Equipment Address keypad**.

For actual address ranges supported by the Modbus equipment, refer to the corresponding manual..

Equipment address range

The following table lists the equipment address range.

Equipment	Bit Address	Word Address	16-Bit	32-Bit
Coils (C)	00001-65536	--	--	--
Discrete Inputs (1)	10001-165536	--	--	--
Input Registers (1)	30001,0-65536,15	300001-365536	L/H (3)	
Holding Registers (2)	40001,0-465536,15	40001-465536	L/H (3)	
legend :				
(1): Read-only				
(2): Read/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 equipment. 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				

16/32 bit examples

The word (16-bit) is managed as follows:

- least significant = byte n
- most significant = byte n + 1

(Check that the connected equipment uses the same format.)

The double word and floating point word (32-bit) are managed as follows:

- least significant = word n
- most significant = word n + 1

(Check that the connected equipment uses the same format.)

16-bit and 32-bit data, High and Low example.

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)

Note: In case of different format between target machine and the equipment, use intermediate variable (which will be used in target machine) for which most significant byte/word and most significant byte/word are inverted.

Consecutive Equipment Addresses

Overview

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

When two variable address on the same equipment are closer than the Gap Span value, they are read in the same request. In other cases, they are read in two distinct requests.

- To speed up data communication, use consecutive variable addresses on the same panel screen.
- The following situations increase the number of times that the equipment 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 equipment types are used.

Consecutives addresses

The following table lists the maximum number of consecutive addresses that can be read for each equipment.

Equipment	Max. consecutive addresses	Gap Span
Coils	512 bits	160 bits
Discrete Inputs		
Input Registers	125 words	10 words
Holding Registers		

I/O Manager Configuration

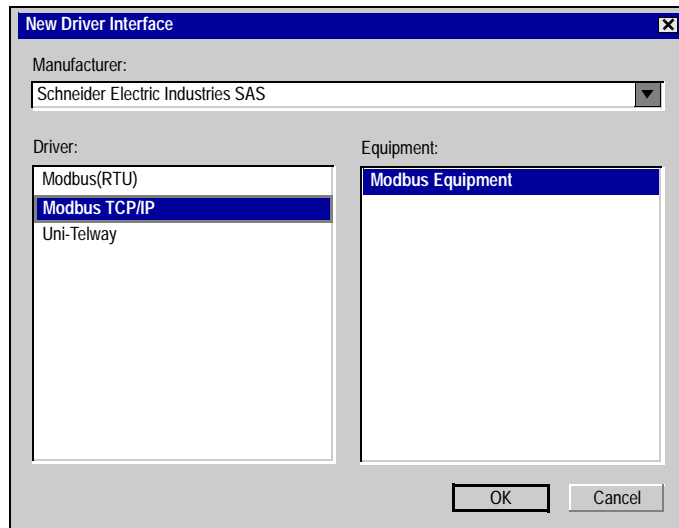
Overview

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

Note: For information on how to display the **New Driver Interface** dialog box, or for details about the I/O Manager, see the online help: Communication -> External I/O -> Setup I/O.

Screen example

Screen example of I/O Manager Configuration.



Equipment Configuration

Overview

To set up details about the communication process between the target machine and the equipment, use the **Equipment Configuration** dialog box.

Note: For information on how to display the **Equipment Configuration** dialog box, see the online help: Communication -> External I/O -> Equipment -> Overview.

Screen example

Screen example of Equipment Configuration.

Description

Screen description.

Area	Description
Destination IP Address.	Enter the equipment's IP address.
Slave Equipment Address.	Use the default value of (255) to communicate with other Modbus TCP/IP ethernet equipment. If you use a gateway to access an equipment on a Modbus serial link, enter the slave address (1-247), and use the destination IP address as the gateway IP address. A value of (0) connects to the gateway itself.

Equipment Address Configuration

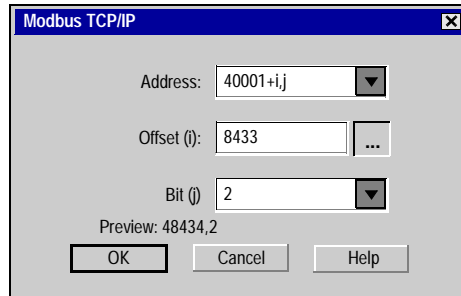
Overview

To define an equipment address for a variable in the Variable List, use the Equipment Address Keypad from the variable properties, see Section 2 (See *Supported Equipment Addresses, p. 9*).

Note: To display the **Equipment Address Keypad**, click on the [...] button.

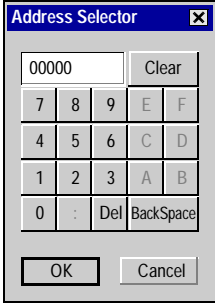
Screen example

Screen example of Equipment Address Configuration.



Description

Screen description.

Area	Description
Address	Choose the start address.
Offset (i)	<p>Define the offset of the equipment's discrete and word equipment types. Type the offset or use the [Address Selector] keypad to enter the offset:</p> 
Bit (j)	<p>List the bit position (0-15) of the equipment's discrete and word equipment types.</p> <p>Example: let's look at a register 40100 and assume the value of 5 is loaded: 40100 = 5</p> <p>In Binary, 40100 = 0000 0000 0000 0101 (16 bits) (assume Least Significant Bit, LSB is far right and this is j=0.)</p> <p>So, 40001 + i, j where i=99 and:</p> <p>j=0 the bit is 1 j=1 the bit is 0 j=2 the bit is 1 j=3 the bit is 0 j=4 the bit is 0 and so on.</p>
Preview	Typing the offset or the Bit allows you to preview the address immediately. Using the Address selector updates the Preview after you click OK.

Note: Be careful when you send STRING as table of word on Modbus because each word LSB and MSB are inverted between Quantum and Premium PLC.

