

# 37. MODBUS TCP/IP Gateway

This chapter explains how to use MODBUS TCP/IP Gateway and configure address mapping tables.

37.1. Overview.....	37-2
37.2. Steps to Create an Address Mapping Table.....	37-2
37.3. Notes about Configuring Address Mapping .....	37-5

### 37.1. Overview

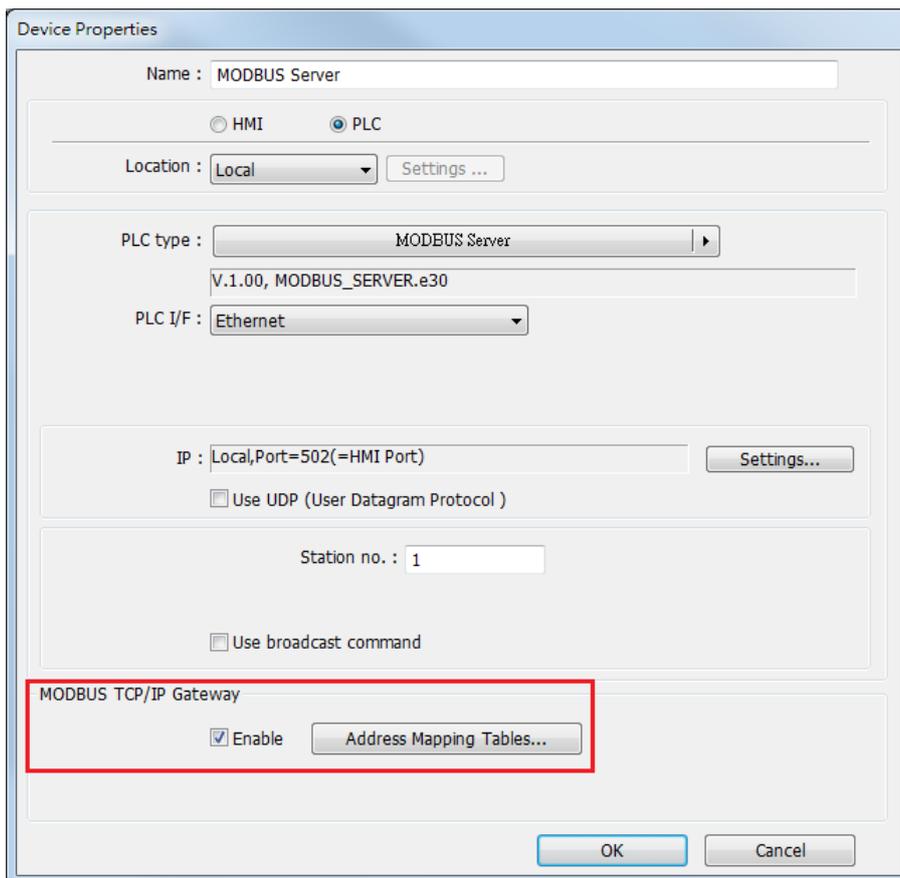
To access the data of the PLC connected to HMI with SCADA software (Supervisory Control and Data Acquisition), the former way was to transfer PLC data to the HMI's local address first, and then use MODBUS TCP/IP protocol on PC to read HMI local address to get PLC data. Now by using MODBUS TCP/IP Gateway provided by EasyBuilder Pro, the mapping of MODBUS address to PLC address can be defined first, and then one can directly use MODBUS TCP/IP protocol to access PLC data.



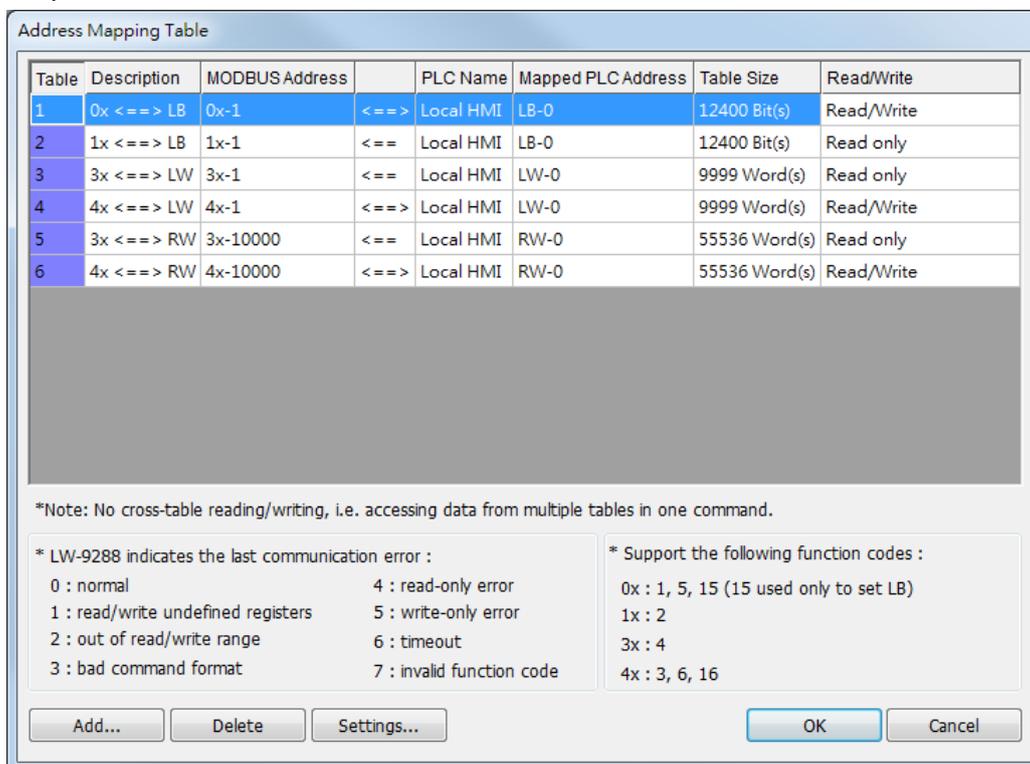
### 37.2. Steps to Create an Address Mapping Table

To create an Address Mapping Table, please follow the steps:

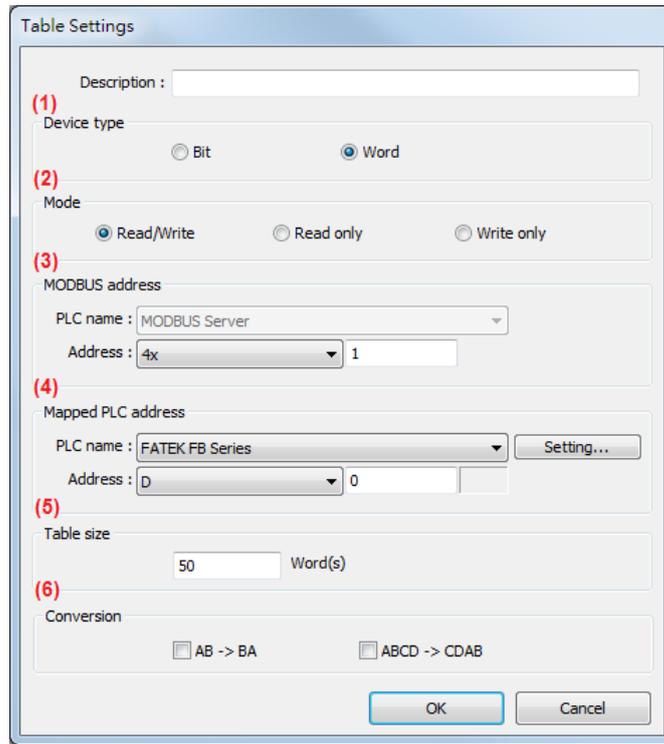
1. In [System Parameter Settings] » [Device] tab, add the PLC device. (In the example FATEK FB Series is used).
2. Add MODBUS Server (Ethernet), select [Enable] check box under [MODBUS TCP/IP Gateway] as shown in the following figure.



3. Click [Address Mapping Tables] button and the following default tables will be displayed. Modify the tables if needed or add new tables.



- For example, to access the data in the 50 consecutive registers of FATEK FB Series PLC starting from register D-0, configure the settings as shown in the following figure.



- Select the device type of the registers to be mapped, in the example select [Word].
- Select the mode to access the data in the mapped register, in the example set to [Read/Write].
- Set the start address of MODBUS, in the example set to “4x-1”.
- Set the start address of the mapped PLC, in the example set to “D-0”.
- Set the range size of address mapping, in the example set to “50”.
- If needed, select high/low byte swap (AB->BA) or high/low word swap (ABCD->CDAB).

Table	Description	MODBUS Address		PLC Name	Mapped PLC Address	Table Size	Read/Write
1	Access D0 ~ D49	4x-1	< == >	FATEK FB Series	D-0	50 Word(s)	Read/Write

The above figure shows that MODBUS Server 4x-1 ~ 4x-50 registers are mapped to FATEK FB Series PLC D-0 ~ D-49 registers.

- When finished, the data of FATEK FB Series PLC D-0 ~ D-49 registers are now accessible by using MODBUS TCP/IP protocol to send read / write command to 4x-1 ~ 4x-50 registers.

### 37.3. Notes about Configuring Address Mapping

- UDP is not supported when using the MODBUS TCP/IP Gateway feature.
- This feature is only supported by MODBUS Server (Ethernet) interface.
- System register LW-9288 is used to indicate if data transfer has been correctly executed.

The following error codes represent:

Value	Definition
0	Normal
1	Read or write the register that is not defined in the Address Mapping Table.
2	Read or write a range of registers that is not within the range defined in a single Address Mapping Table. (Or, read / write a register that is defined in other Address Mapping Table.)
3	The command format does not follow MODBUS TCP/IP protocol.
4	Modify a read-only register.
5	Read a write-only register.
6	Cannot get the correct reply from PLC within the specified time range.
7	Use a function code that is not supported by MODBUS Server.

- The defined register range must not overlap between different mapping tables.
- If [MODBUS TCP/IP Gateway] is enabled, EasyBuilder Pro will cancel the original mapping between MODBUS Server and HMI register. That includes:

- (1) 0x, 1x mapped to LB
- (2) 3x, 4x mapped to LW, RW

Therefore, to access data in LB or LW register via 0x, 1x, 3x, 4x, configure the Address Mapping Table again. The following figure is an example.

Table	Description	MODBUS Address		PLC Name	Mapped PLC Address	Table Size	Read/Write
1	0x <==> LB	0x-1	<==>	Local HMI	LB-0	12400 Bit(s)	Read/Write
2	1x <==> LB	1x-1	<==	Local HMI	LB-0	12400 Bit(s)	Read only
3	3x <==> LW	3x-1	<==	Local HMI	LW-0	9999 Word(s)	Read only
4	4x <==> LW	4x-1	<==>	Local HMI	LW-0	9999 Word(s)	Read/Write
5	3x <==> RW	3x-10000	<==	Local HMI	RW-0	55536 Word(s)	Read only
6	4x <==> RW	4x-10000	<==>	Local HMI	RW-0	55536 Word(s)	Read/Write