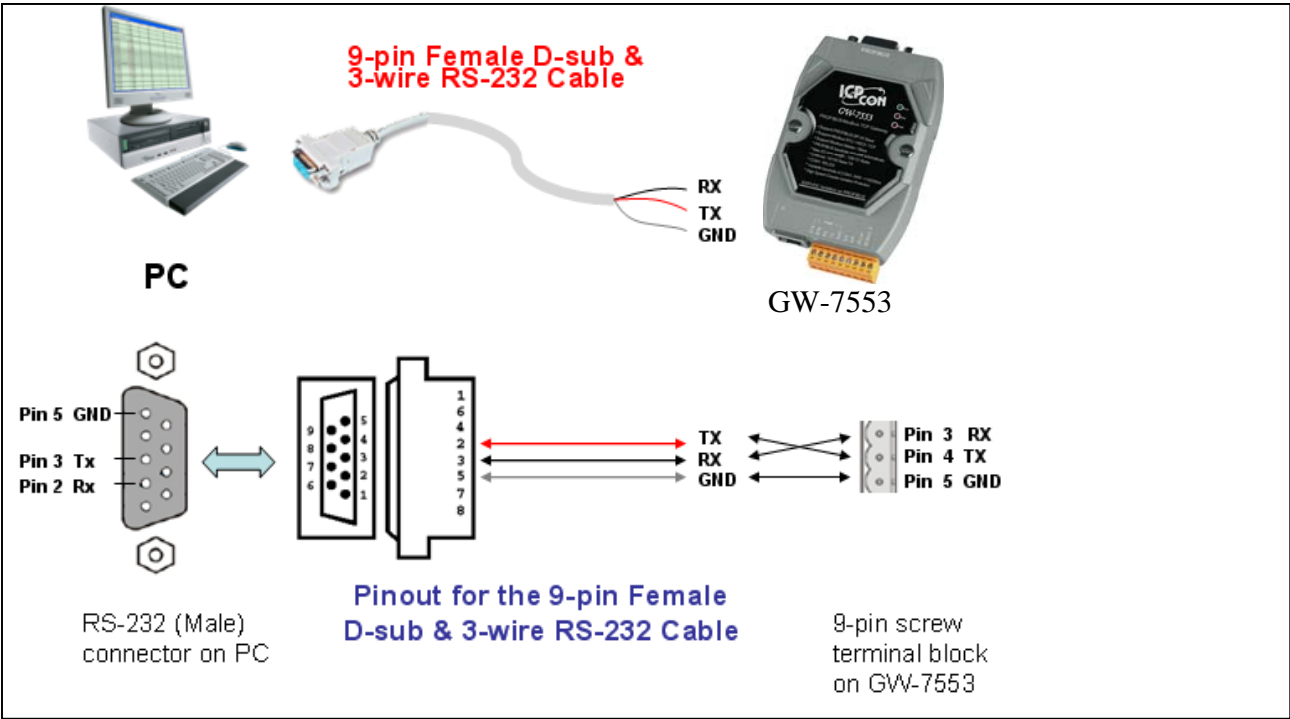
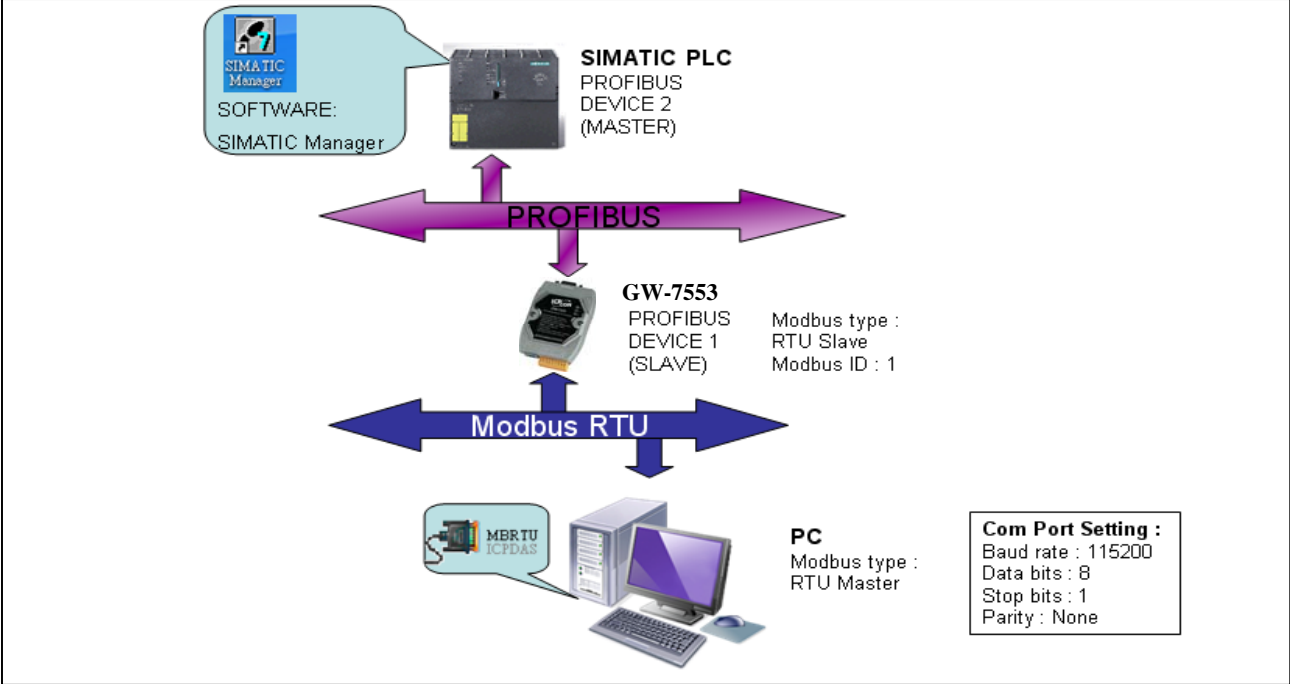


# GW-7553 (Modbus RTU Slave)

## example for SIMATIC STEP 7

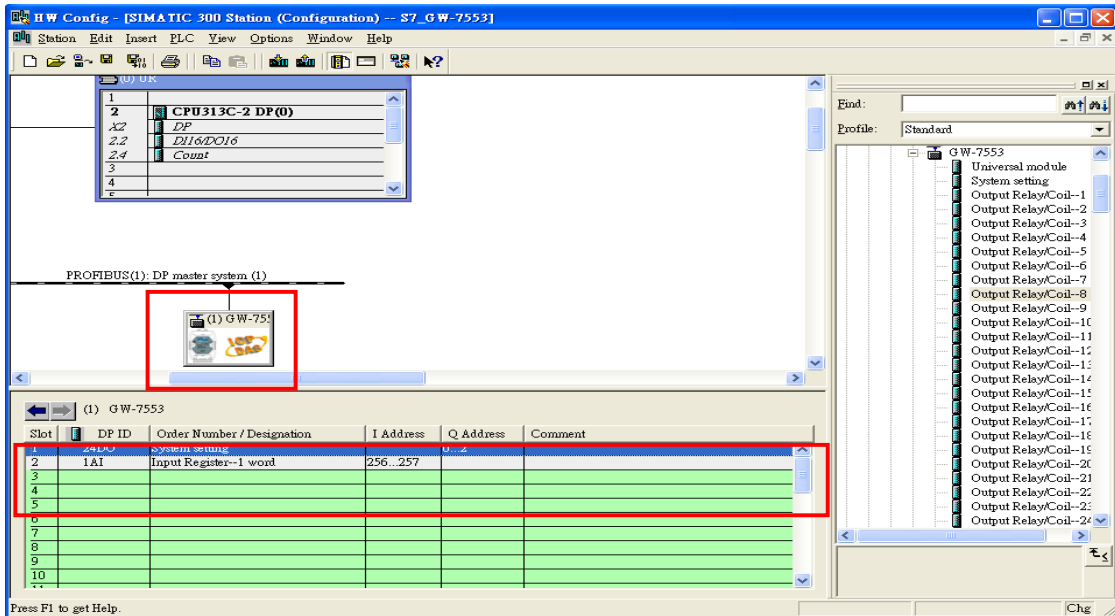
System Architecture: GW-7553 is a **PROFIBUS slave** and **Modbus slave** device.



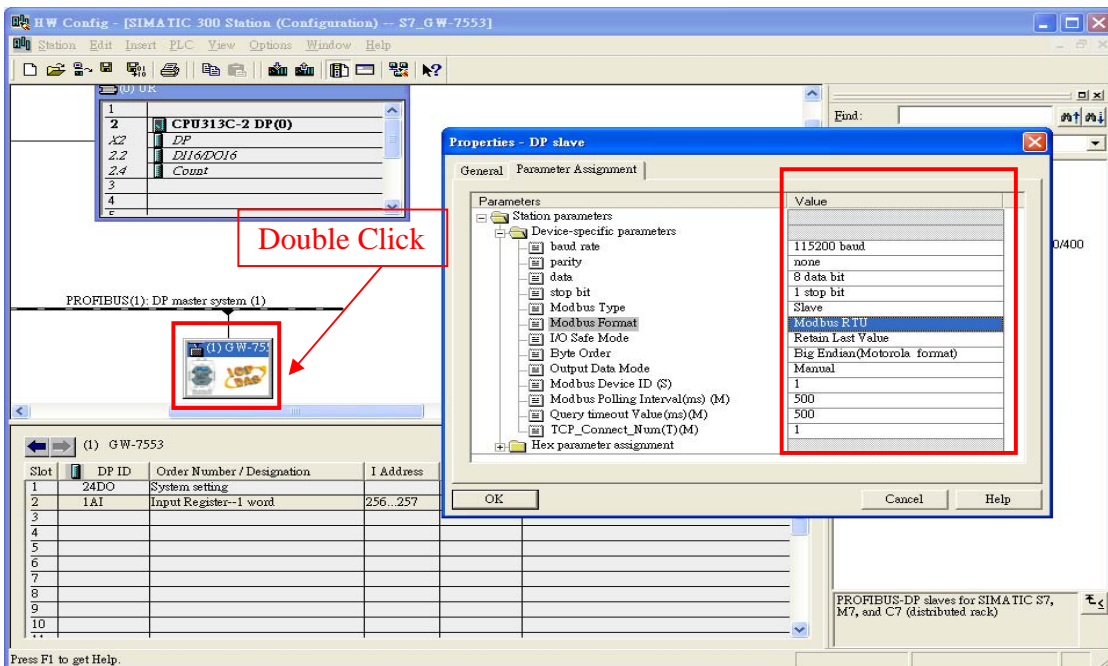
## Example 1: PLC receives AO data from Modbus master.

### SIMATIC STEP 7 Edit

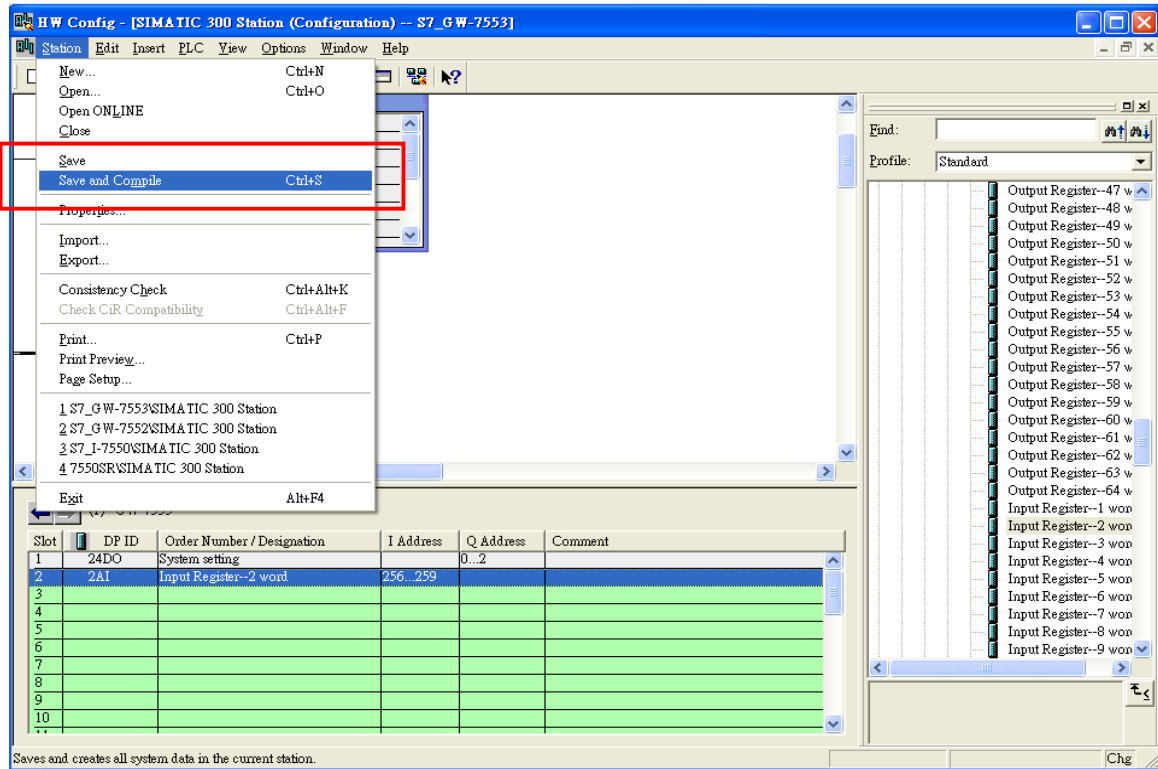
1. HW Config. – configure GW-7553 (ex: System setting module x1, Input Register—2 word module x1)



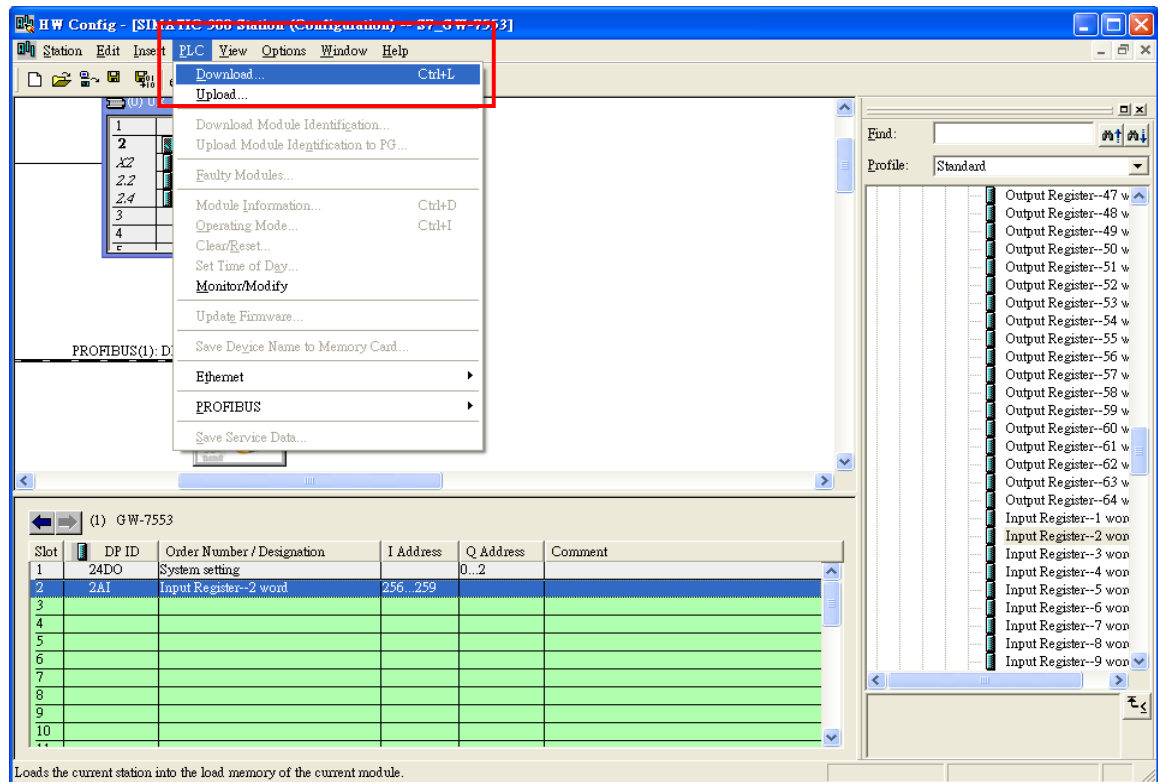
2. HW Config – Parameter assignment (ex: Com port settings, Modbus type: Slave, Modbus format: RTU, Byte Order: Big Endian). Confirm the GW-7553's Com Port setting is the same with MBRTU tool (ex: baud rate-115200, data bits-8, stop bits-1, parity-none). About the MBRTU tool, please refer to the “Communication test” in the below.



### 3. Save and Compile



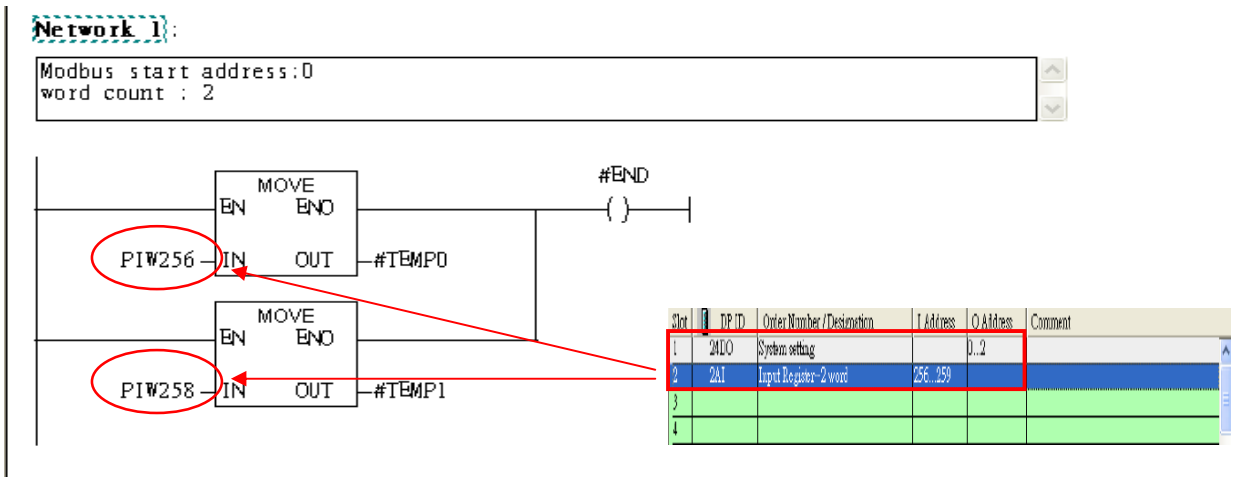
### 4. Download setting into STEP 7



## 5. S7 program edit

Variables used in the example LD Program:

Name	Data Type	Address	Comment
OB1_SCAN_1			
OB1_PRIORITY			
OB1_OB_NUMBR	Byte	3.0	1 (Organization block 1, OB1)
OB1_RESERVED_1	Byte	4.0	Reserved for system
OB1_RESERVED_2	Byte	5.0	Reserved for system
OB1_PREV_CYCLE	Int	6.0	Cycle time of previous OB1 scan (milliseconds)
OB1_MIN_CYCLE	Int	8.0	Minimum cycle time of OB1 (milliseconds)
OB1_MAX_CYCLE	Int	10.0	Maximum cycle time of OB1 (milliseconds)
OB1_DATE_TIME	Date_And_Time	12.0	Date and time OB1 started
END	Bool	20.0	
TEMP0	Word	22.0	
TEMP1	Word	24.0	



## 6. S7 program download

The screenshot shows the SIMATIC Manager interface with the 'Downloads' menu open. The menu options include: Select Online CPU..., Establish Connection to Configured CPU, CPU Messages..., Display Force Values, Monitor/Modify Variables, Module Information..., Operating Mode..., Clear/Reset..., and Set Time of Day... The background shows the same ladder logic diagram for Network 1. The status bar at the bottom indicates 'Loads the current block to the PLC.'

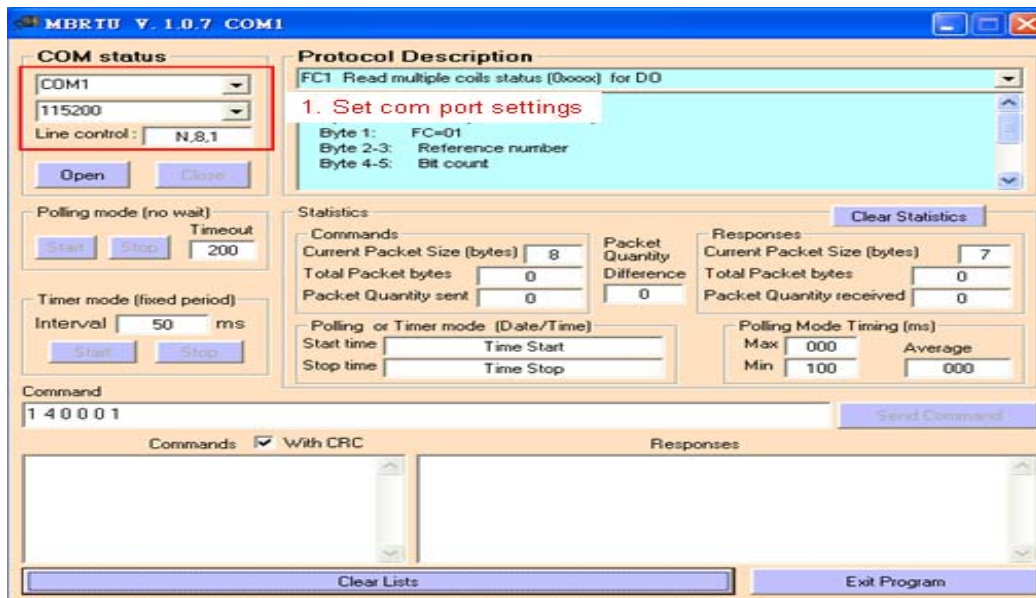
7. Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



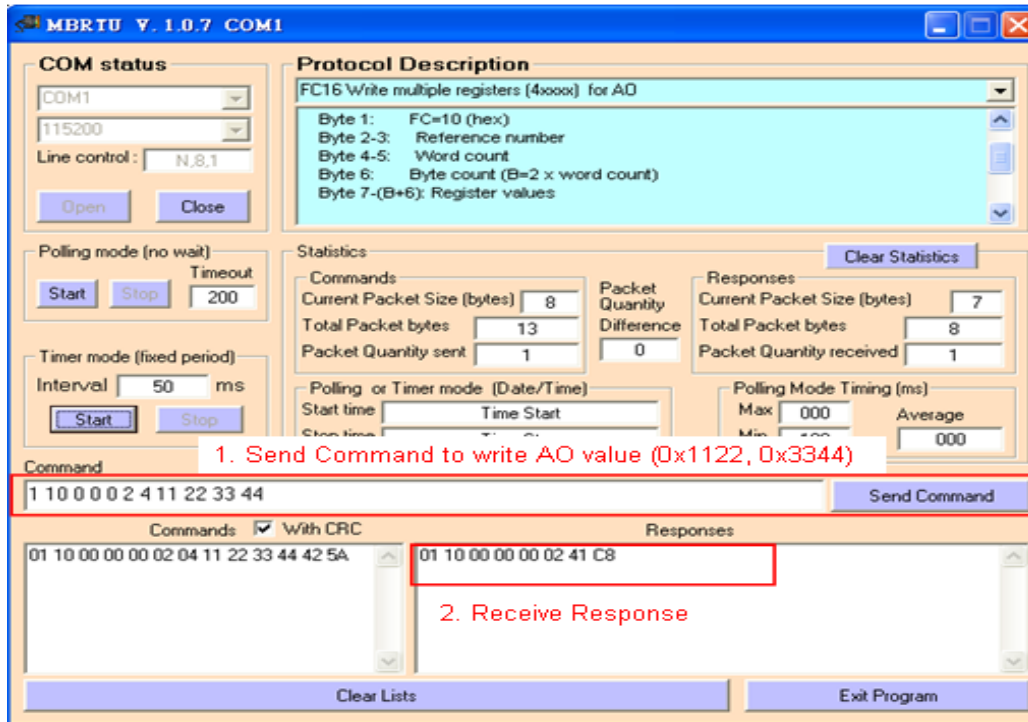
### Communication test

1. Confirm the Com Port setting of Modbus Master tool is the same with GW-7553's (ex: MBRTU, you can download MBRTU from [http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus\\_utility/](http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus_utility/))

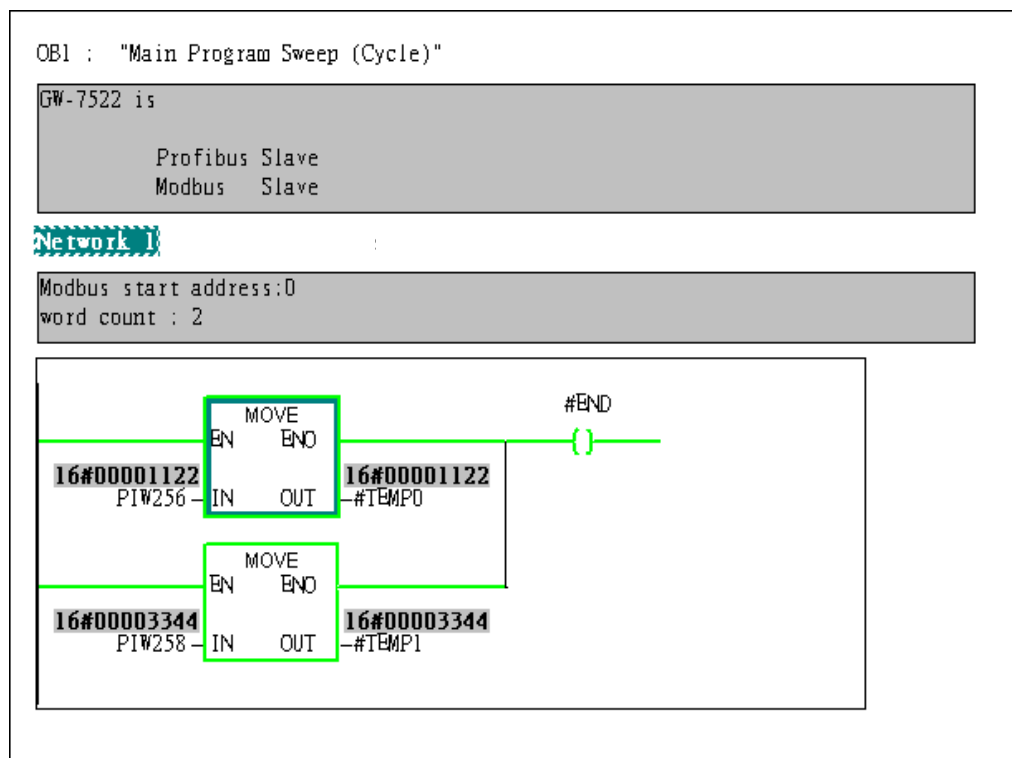
Com Port Settings: baud rate-115200, data bits-8, stop bits-1, parity-none



2. Click "Send Command" button to write AO value (0x1122, 0x3344)



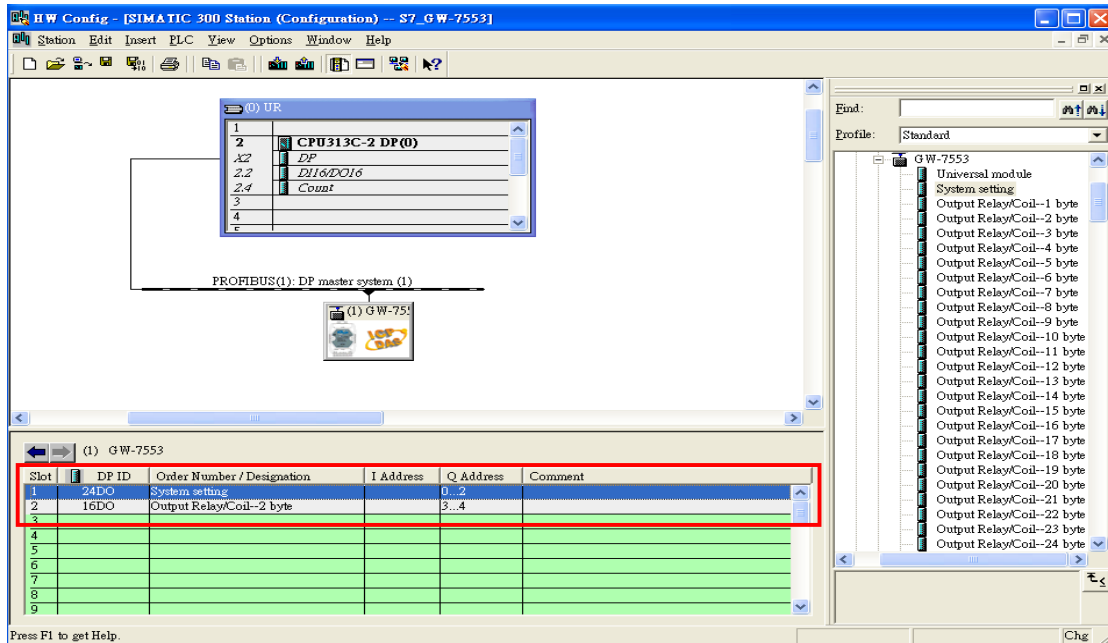
3. PLC will receives the "AO Value (0x1122, 0x3344)" at PLC address PIW256&PIW258



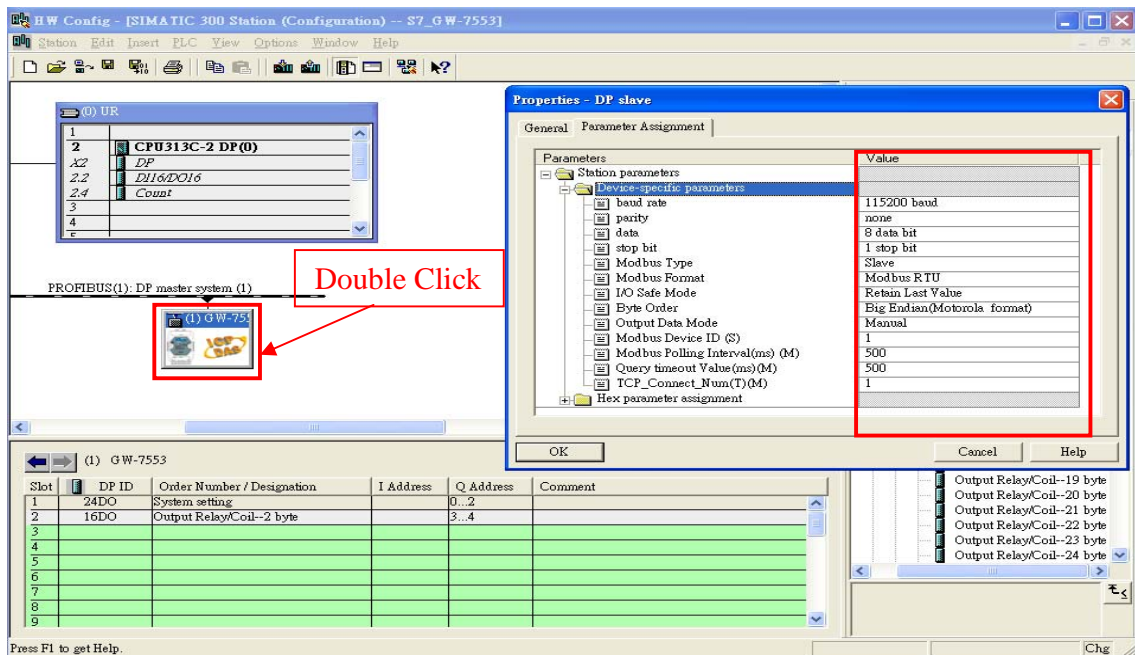
## Example 2: PLC refreshes DI data to Modbus master.

### SIMATIC STEP 7 Edit

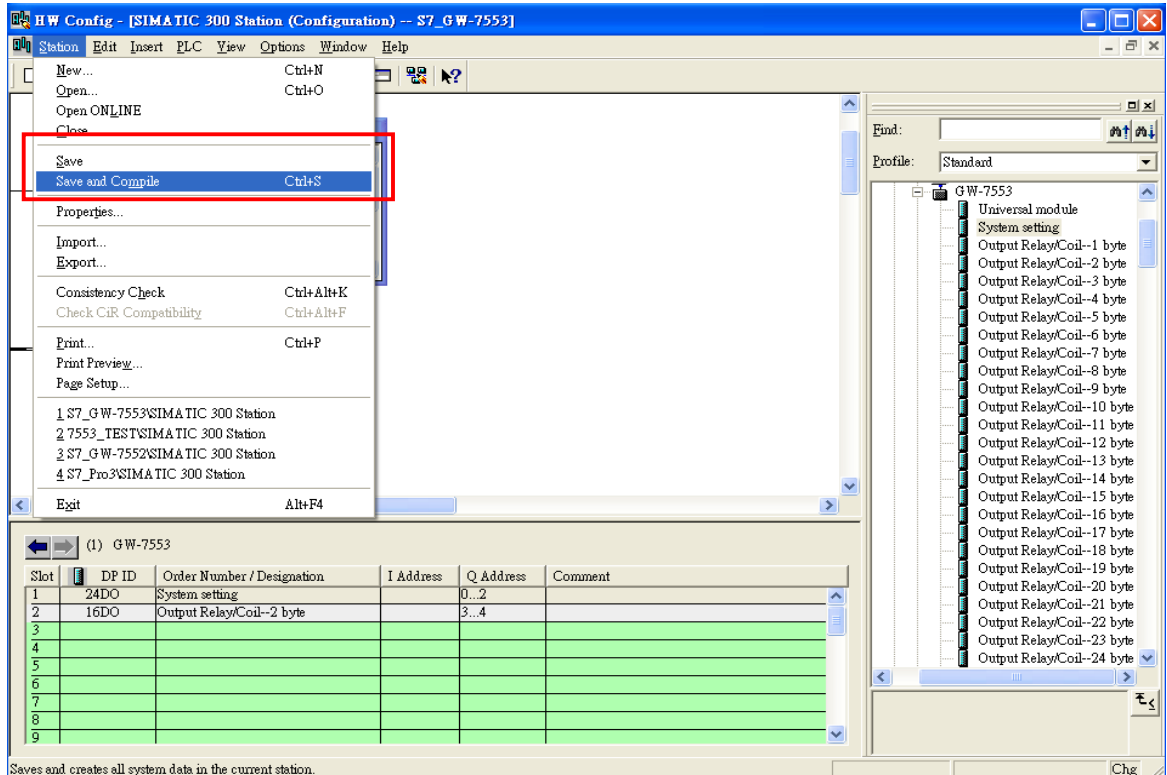
1. HW Config. – configure GW-7553 (ex: System setting module x1, Output Relay/Coil—2 byte module x1)



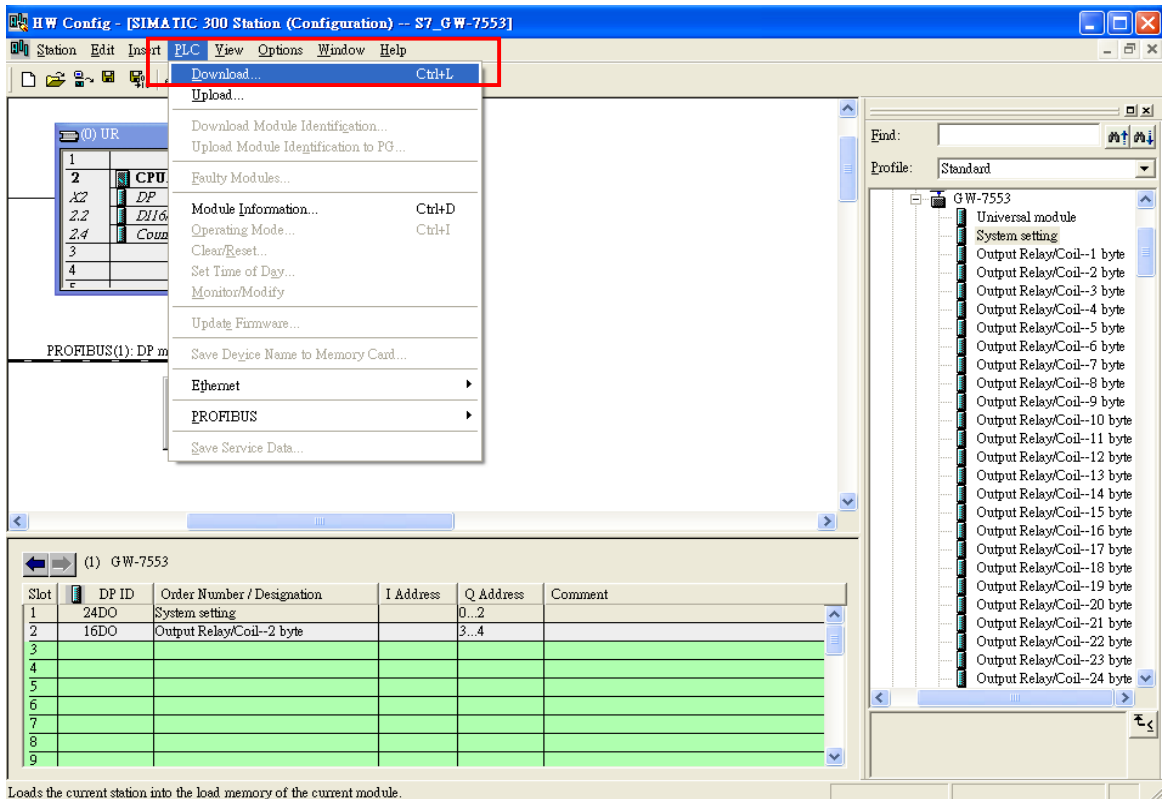
2. HW Config – Parameter assignment (ex: Com port settings, Modbus type: Slave, Modbus format: RTU, Byte Order: Big Endian). Confirm the GW-7553's Com Port setting is the same with MBRTU tool (ex: baud rate-115200, data bits-8, stop bits-1, parity-none). About the MBRTU tool, please refer to the “Communication test” in the below.



### 3. Save and Compile



### 4. Download setting into STEP 7



## 5. S7 program edit

Variables used in the example LD Program:

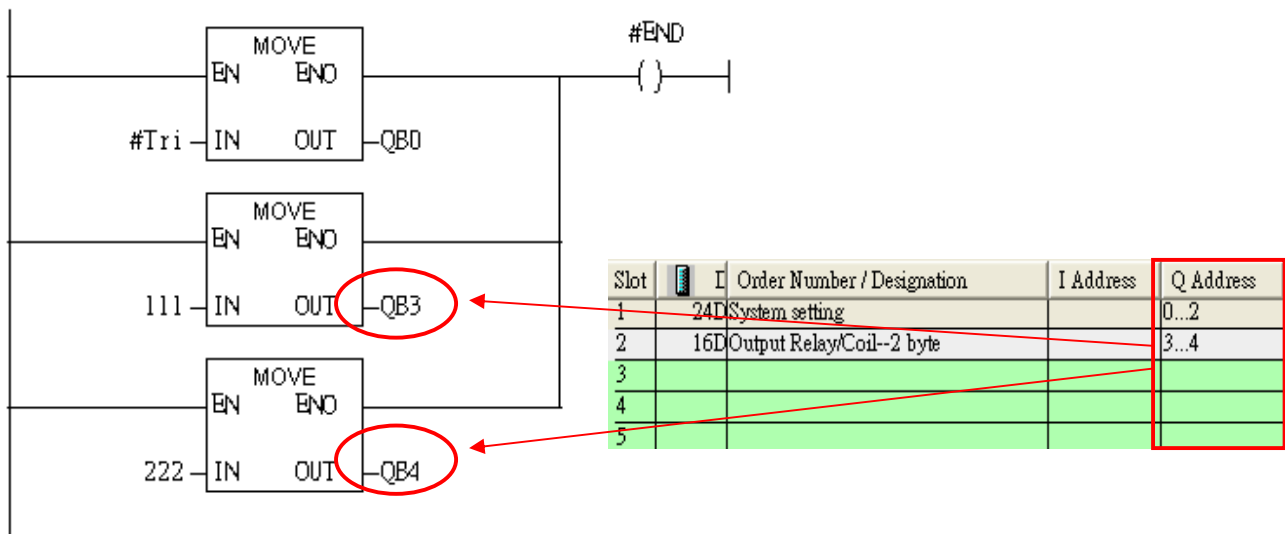
Contents Of: 'Environment\Interface\TEMP'				
	Name	Data Type	Address	Comment
OB1_MAX_CYCL				
OB1_DATE_TIM				
END	END	Bool	20.0	
Tri	Tri	Int	22.0	

OB1 : "Main Program Sweep (Cycle)"

PROFIBUS slave  
Modbus slave

**Network 1**: QB0 add "1" refresh DO value

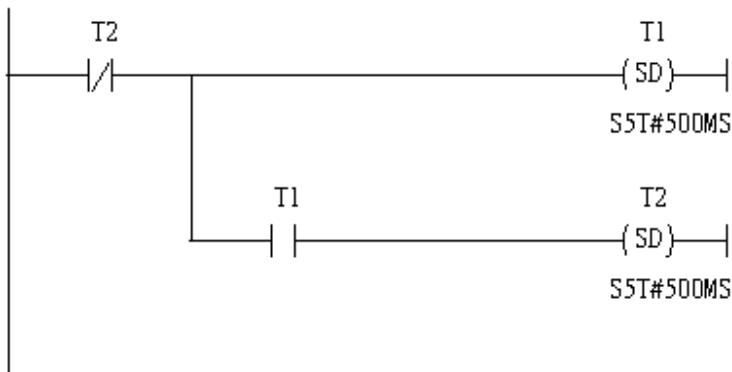
2 byte 16 DO



Using T2 trigger T1 .C1 and Tri will add 1 every 1s.

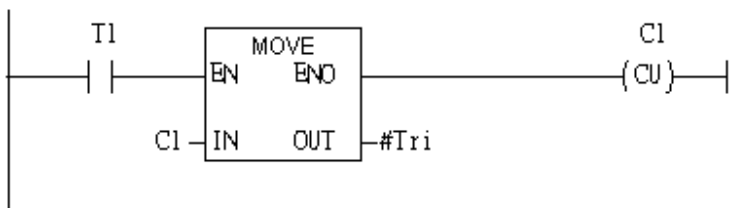
**Network 2 :** Timer T1 & T2

Using T2 trigger T1



**Network 3 :** T1 trigger Counter(C1)

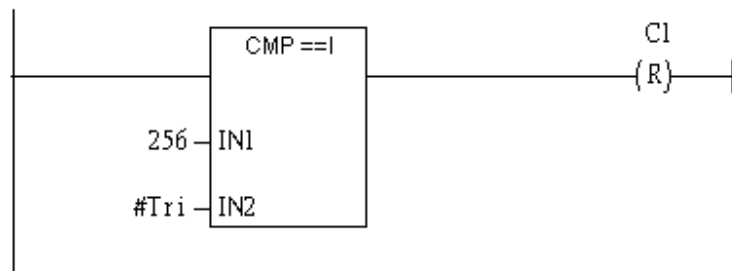
Counter(C1) add "1" and Tri add "1" , too.



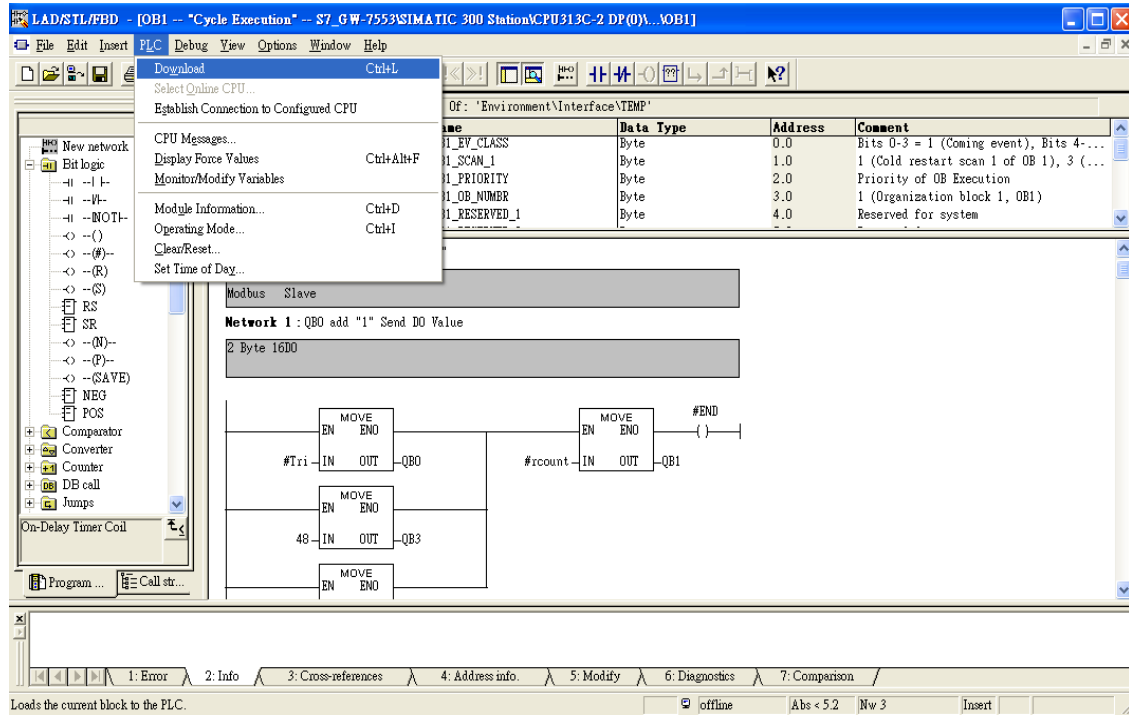
If Tri is equal to 256 then reset counter (C1)

**Network 4 :** Compare Tri with 256

If Tri is equal to 256 that will reset C1.



## 6. S7 program download



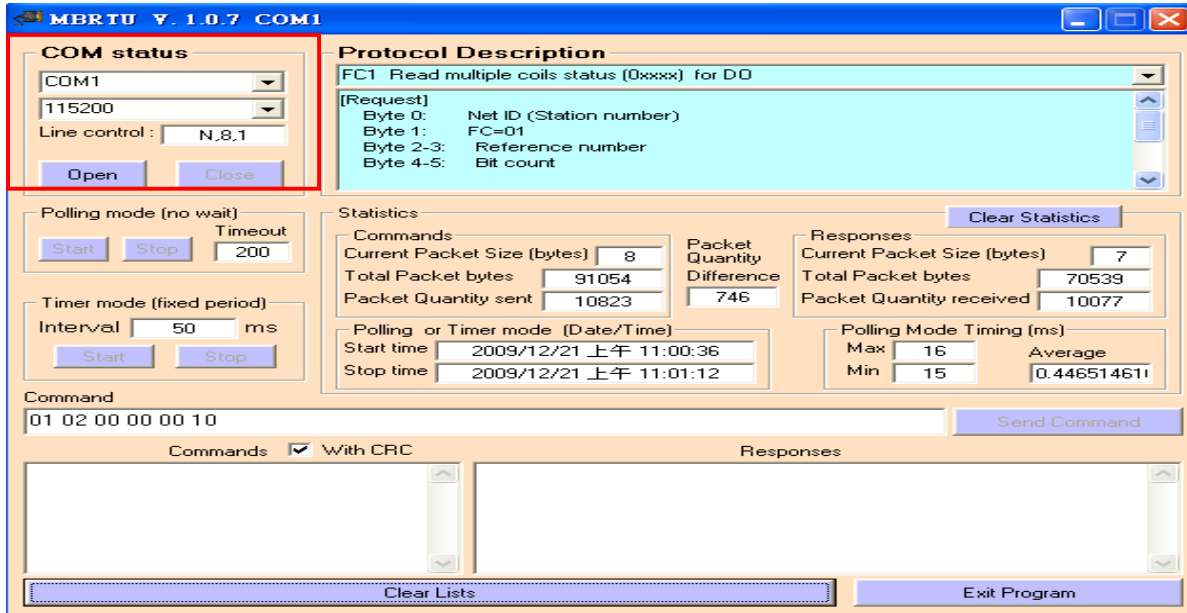
7. Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



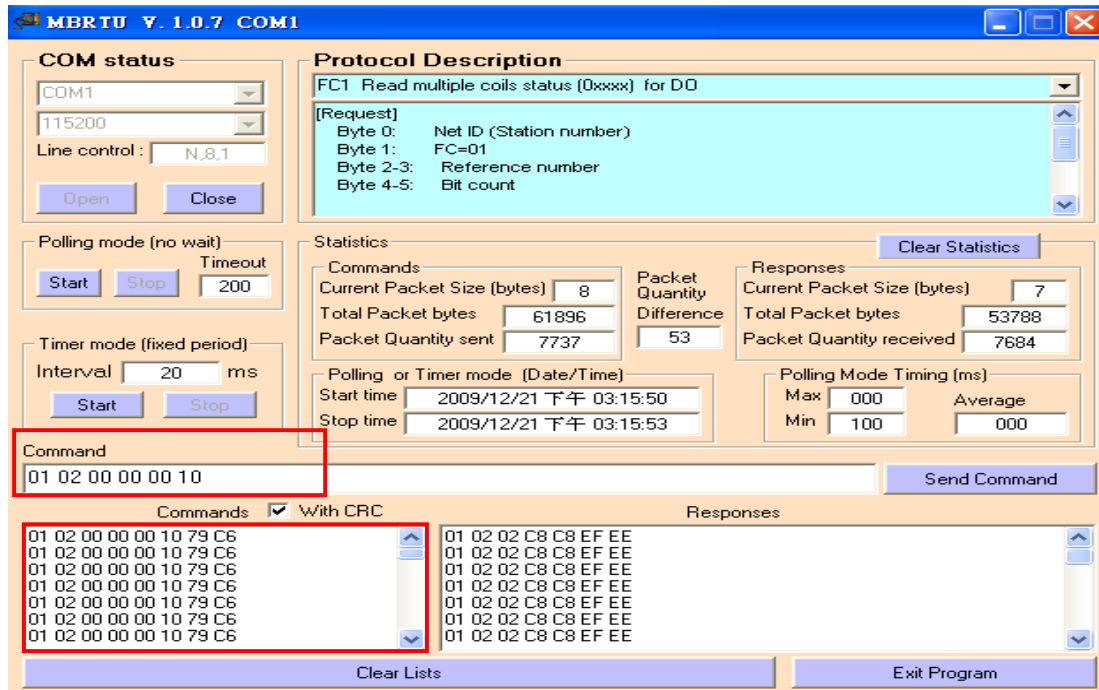
## Communication test

1. Confirm the Com Port setting of Modbus Master tool is the same with GW-7553's (ex: MBRTU, you can download MBRTU from [http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus\\_utility/](http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus_utility/))

Com Port Settings: baud rate-115200, data bits-8, stop bits-1, parity-none



2. Input command (" 01 02 00 00 00 10") in MBRTU and click <Send Command> button to send Modbus command: "01 02 00 00 00 10 79 C6". We can get the DI value (0xC8, 0xC8) from the response message.



- We change QB3 to 0xFE and QB4 to 0xDC, and then we can click <Send Command> button to read DI again at MBRTU and we will get the new DI value (0xFE, 0xDC) from the response message.

**Network 1**: QB0 add "1" send DO valve

2 byte 16D0

