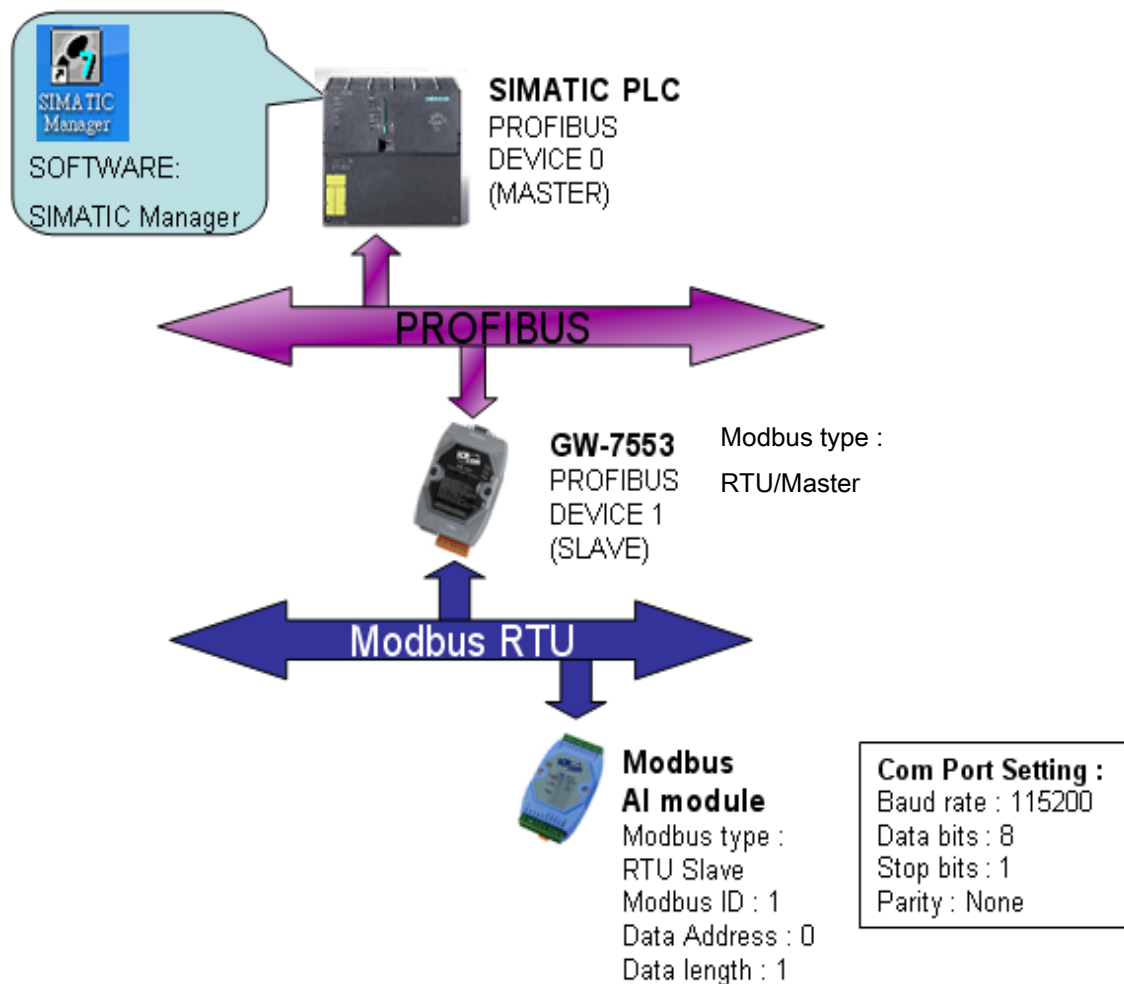


GW-7553 (Modbus RTU Master)

example for SIMATIC STEP 7

Example 1: PLC reads AI module data from GW-7553.

Read a Modbus RTU AI module (PROFIBUS Slave & Modbus RTU Master)

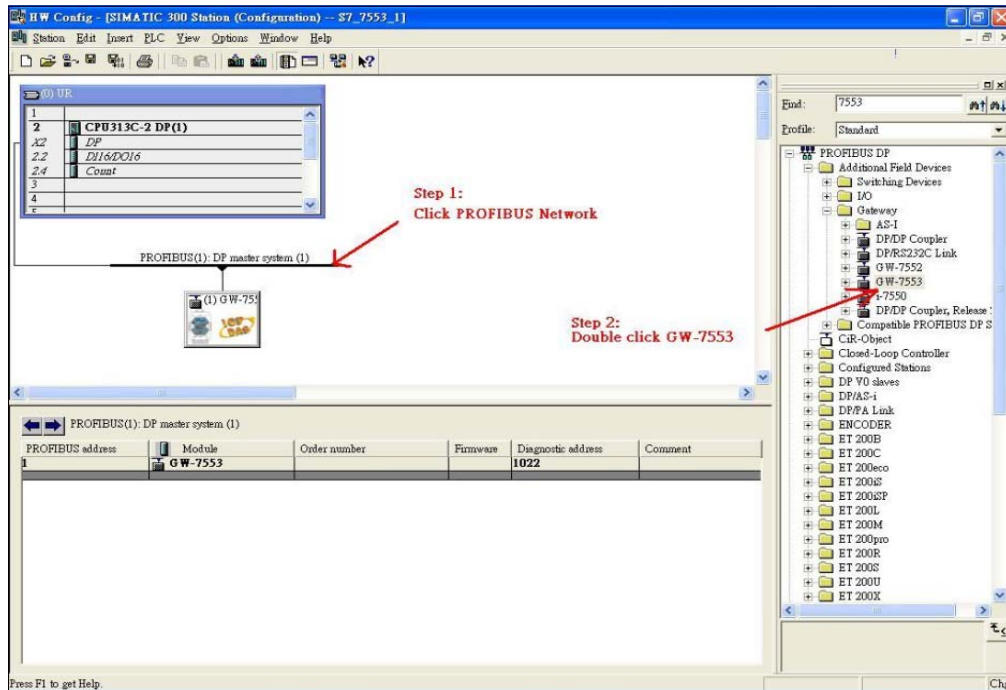


“Follow the below steps to establish the system!”

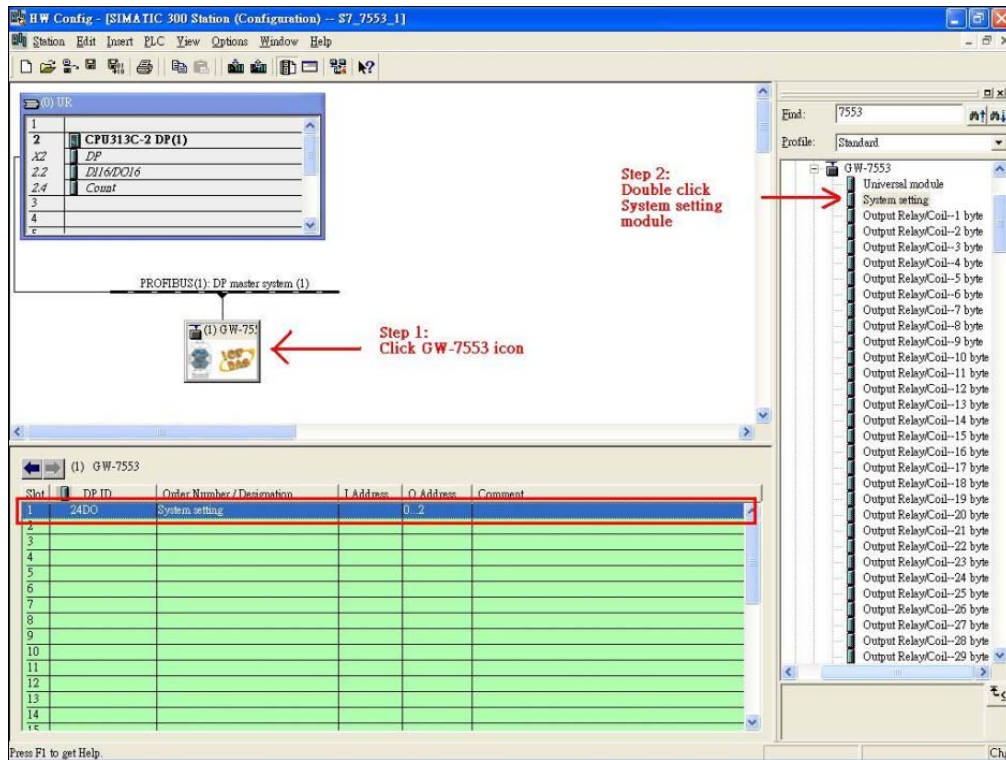
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

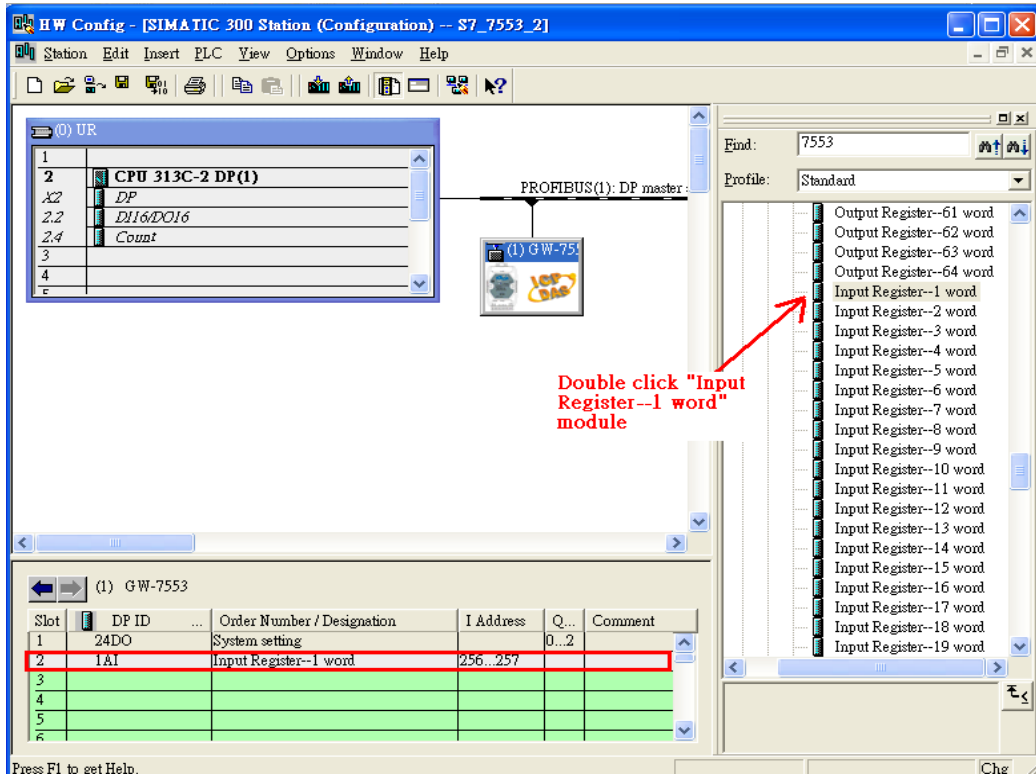
1. Add a GW-7553 module



2. Add a System module

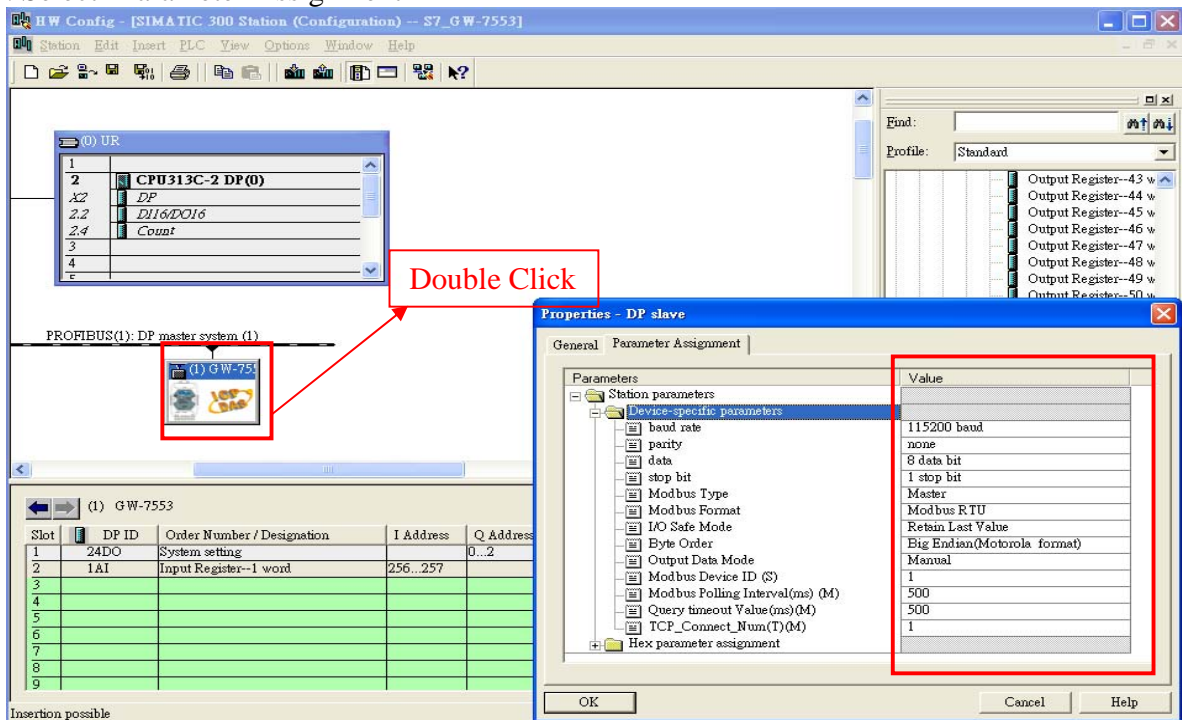


3. Add "Input Register—1 word" module



Step 2: Set the parameters of the GW-7553

1. Double click GW-7553 icon
2. Select "Parameter Assignment"

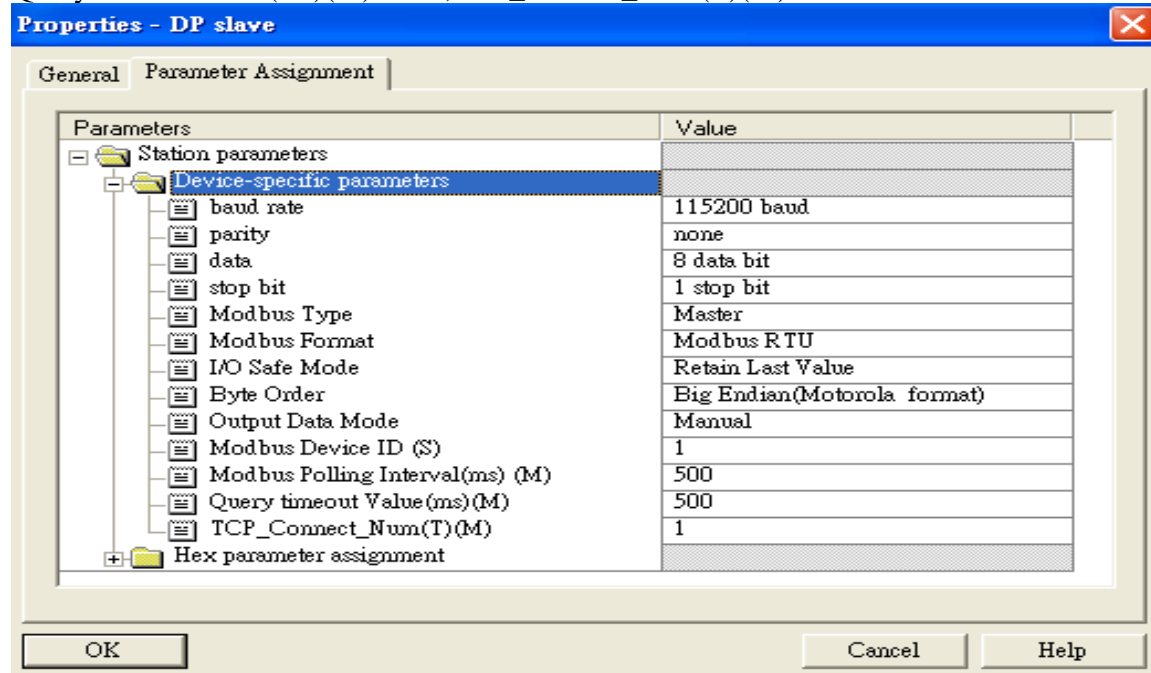


3. Set common parameters of the GW-7553

Common parameters →

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; **Modbus type: Master**
Modbus Format: Modbus RTU; I/O Safe Mode: Retain Last Value; **Byte Order: Big Endian**

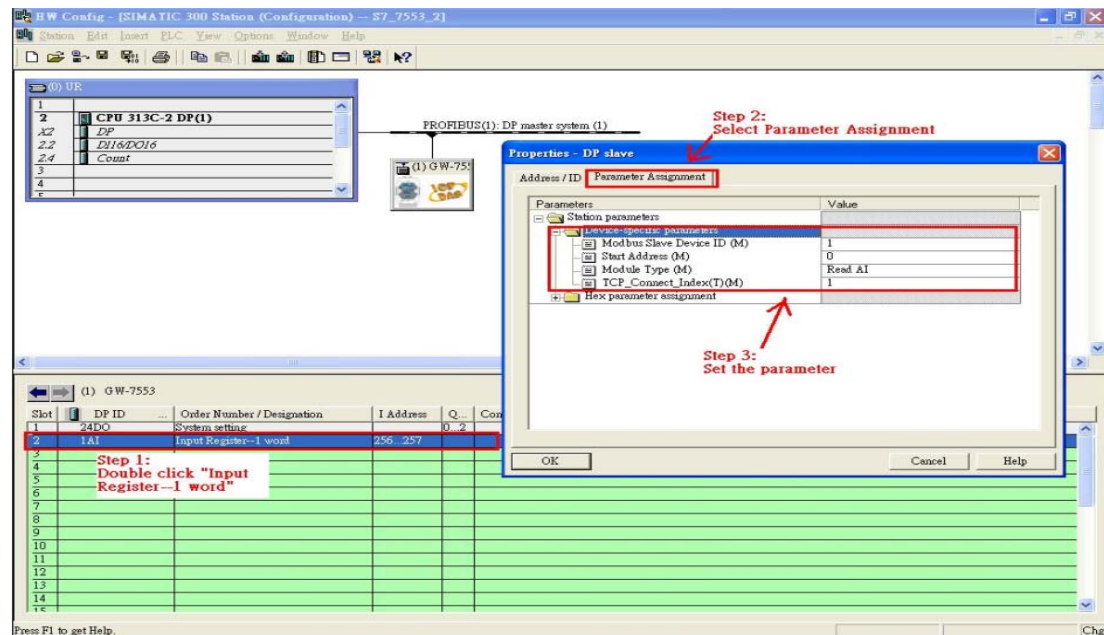
Output Data Mode: Manual; Modbus Device ID (S): 1; Modbus Polling Interval(ms) (M): 500
 Query timeout value(ms)(M): 500 ;TCP_connect_Num(T)(M): 1



4. Set module parameters of the GW-7553

(1) Double click "input register—1 word" module

(2) Select "Parameter Assignment"



5. Setup "input register—1 word" module parameters

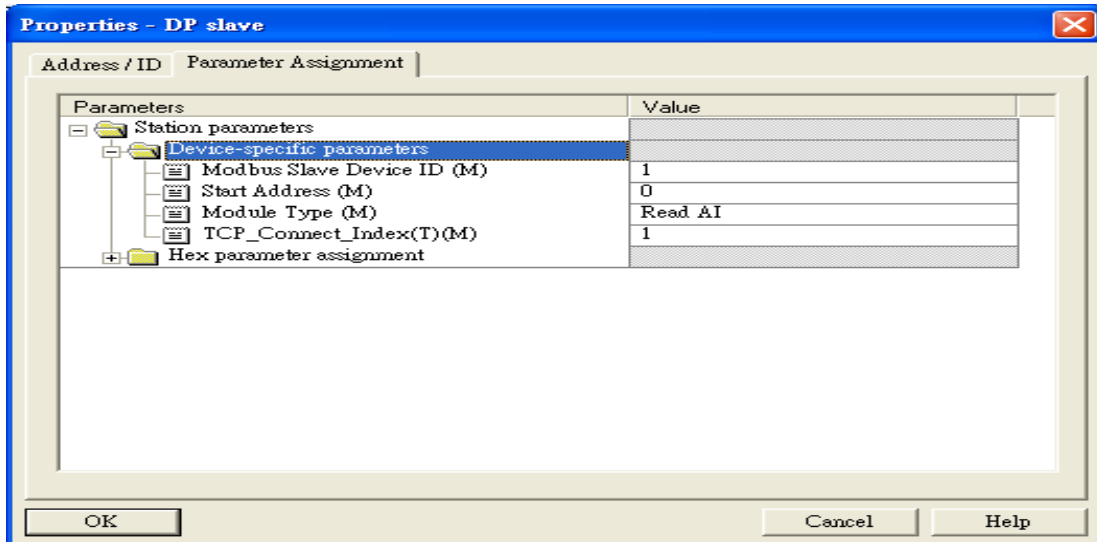
Module parameters →

Modbus Slave Device ID: 1

Slave Address: 0 (Protocol address (base 0))

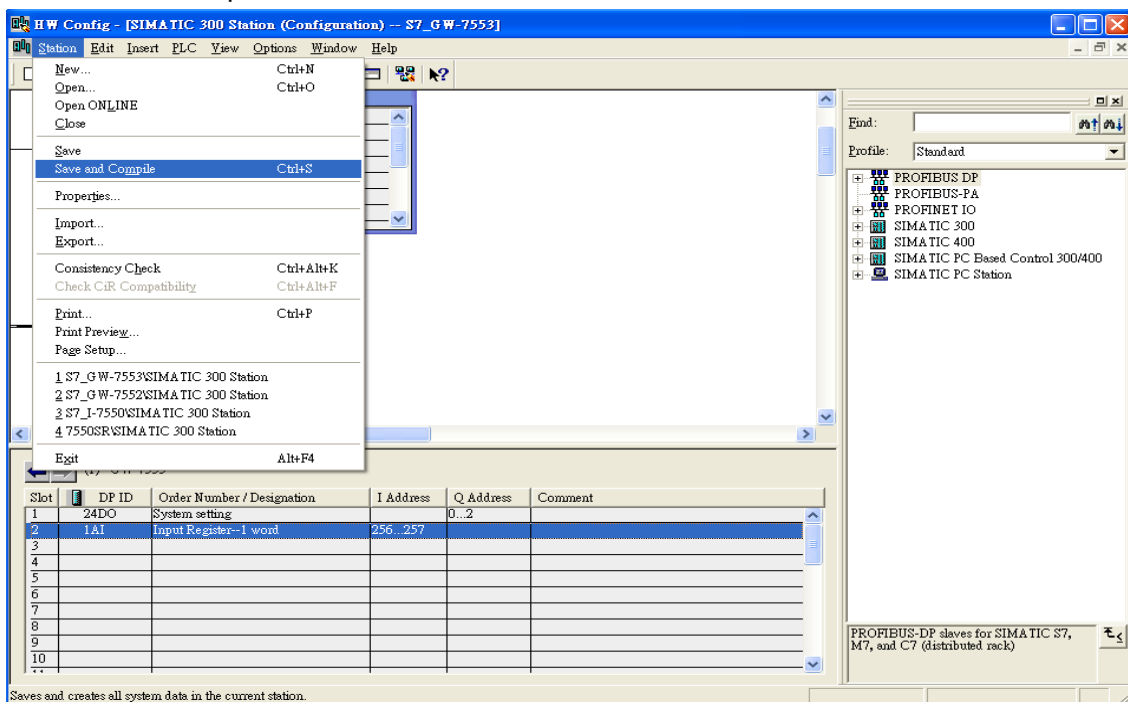
Module Type: Read AI

TCP_Connect_Index(T)(M): 1

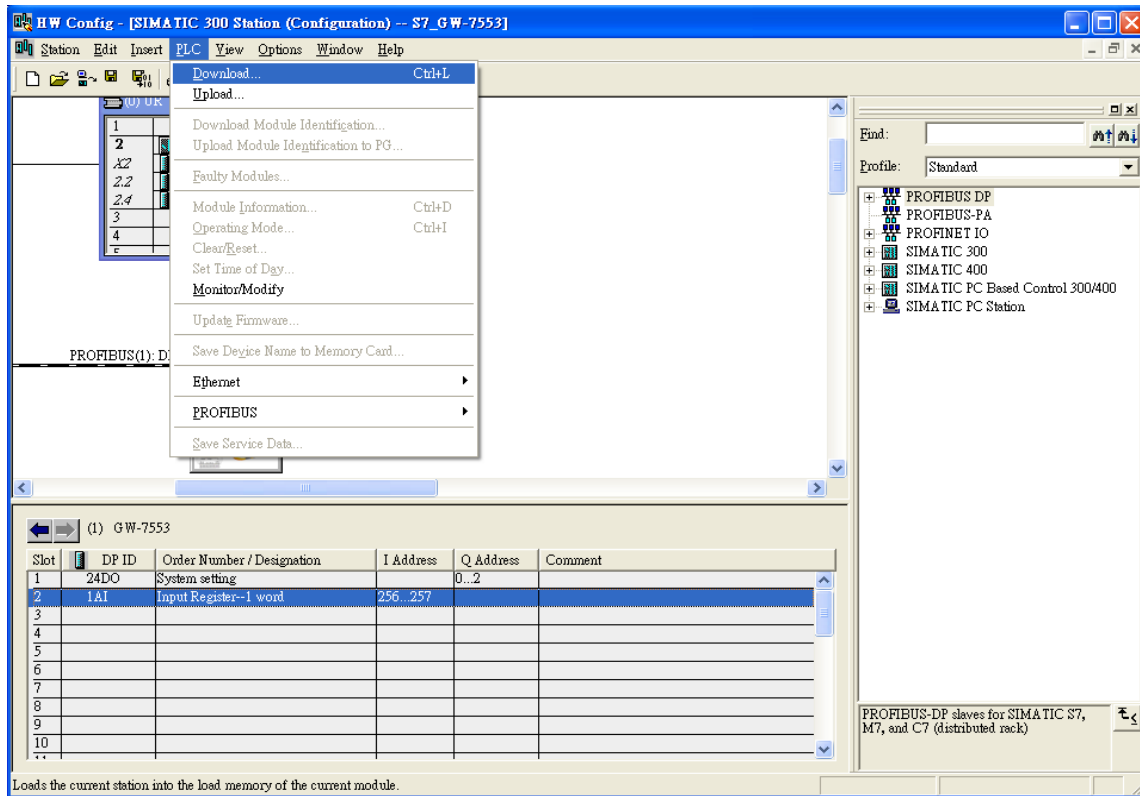


Step 3: Download the HW settings into SIMATIC PLC

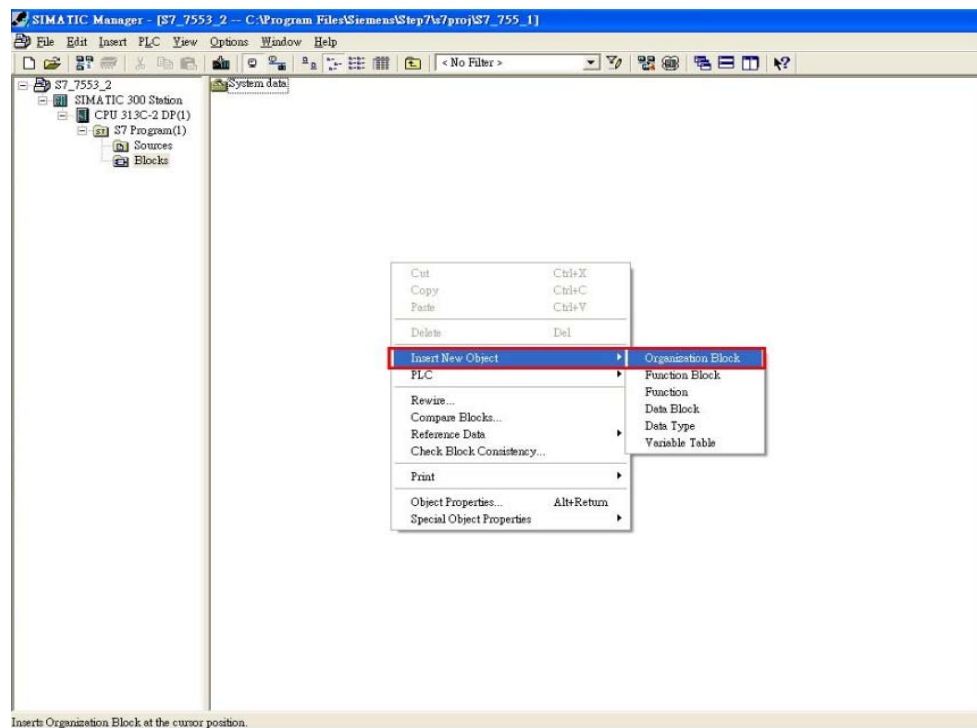
1. Save and Compile

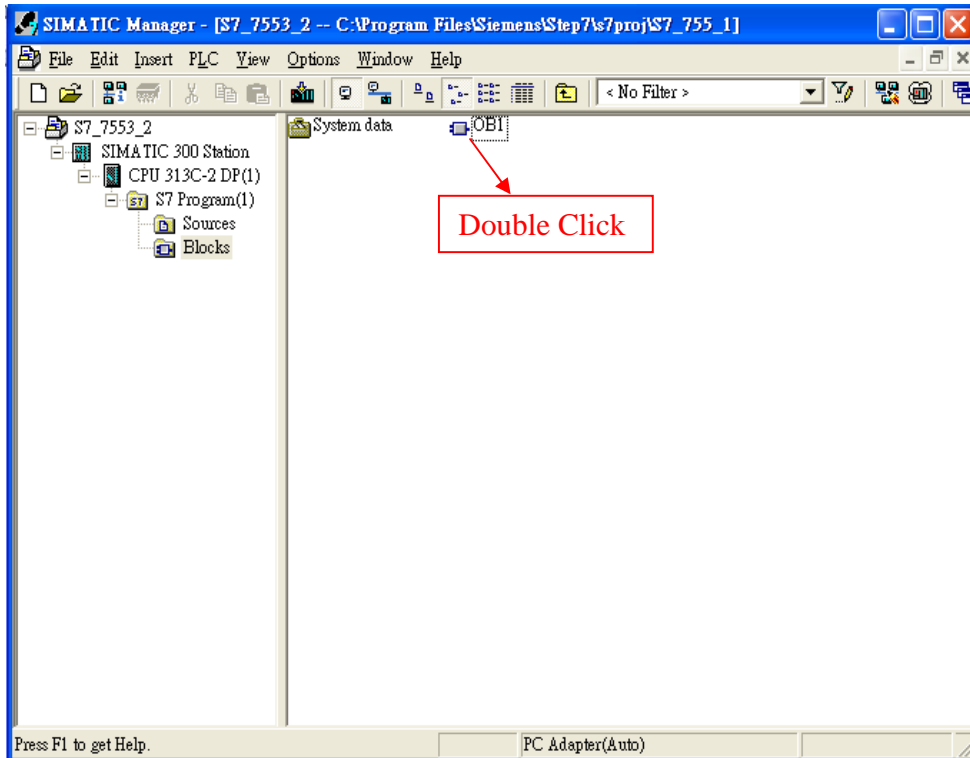
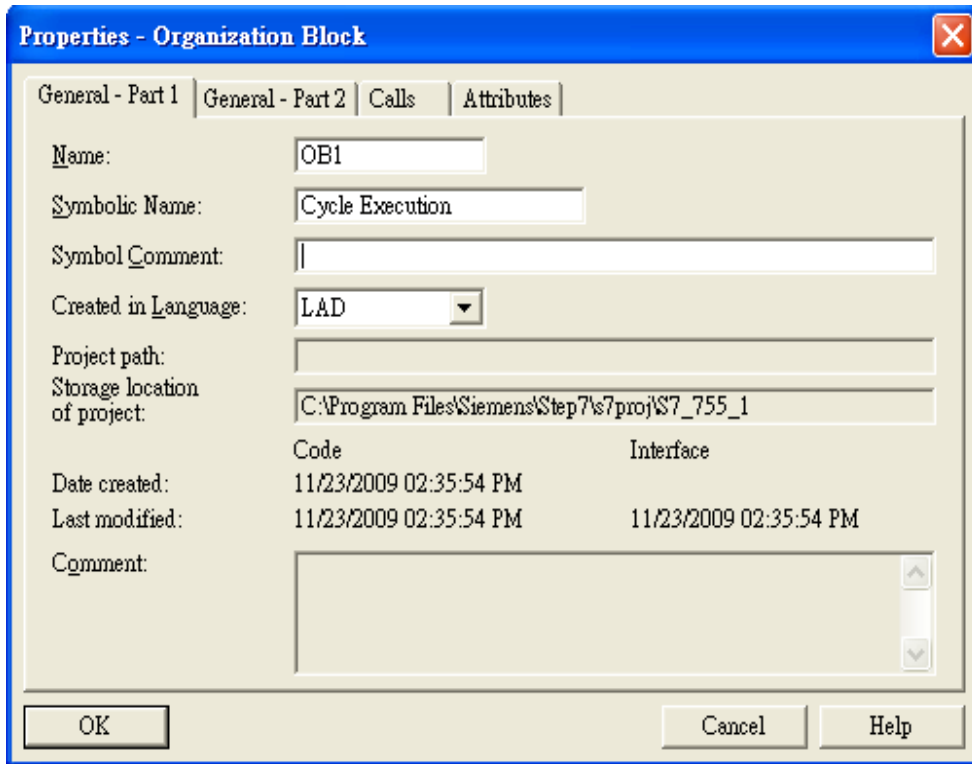


2. Download HW setting into STEP7



Step 4: Insert a new Organization Block (OB1)





Step 5: Edit OB1

Contents Of: 'Environment\Interface\TEMP'

Name	Data Type	Address	Co
AIValue	Word	20.0	
End	Bool	22.0	

OB1 : "Main Program Sweep (Cycle)"

Network 1: Read AI

```

    MOVE
    EN  BND  #End
    PIW256 - IN  OUT - #AIValue
  
```

Slot	DP ID	Order Number / Designation	I Address	Q Address	Comment
1	24DO	System setting		0..2	
2	1AI	Input Register-1 word	256..257		
3					
4					
5					

Step 6: Download the settings into SIMATIC PLC

Download

Contents Of: 'Environment\Interface\TEMP'

Name	Data Type	Address	Comme
PREV_CYCLE	Int	6.0	Cycle
MIN_CYCLE	Int	8.0	Minimu
MAX_CYCLE	Int	10.0	Maximu
DATE_TIME	Date_And_Time	12.0	Date a
	Word	20.0	
End	Bool	22.0	

OB1 : "Main Program Sweep (Cycle)"

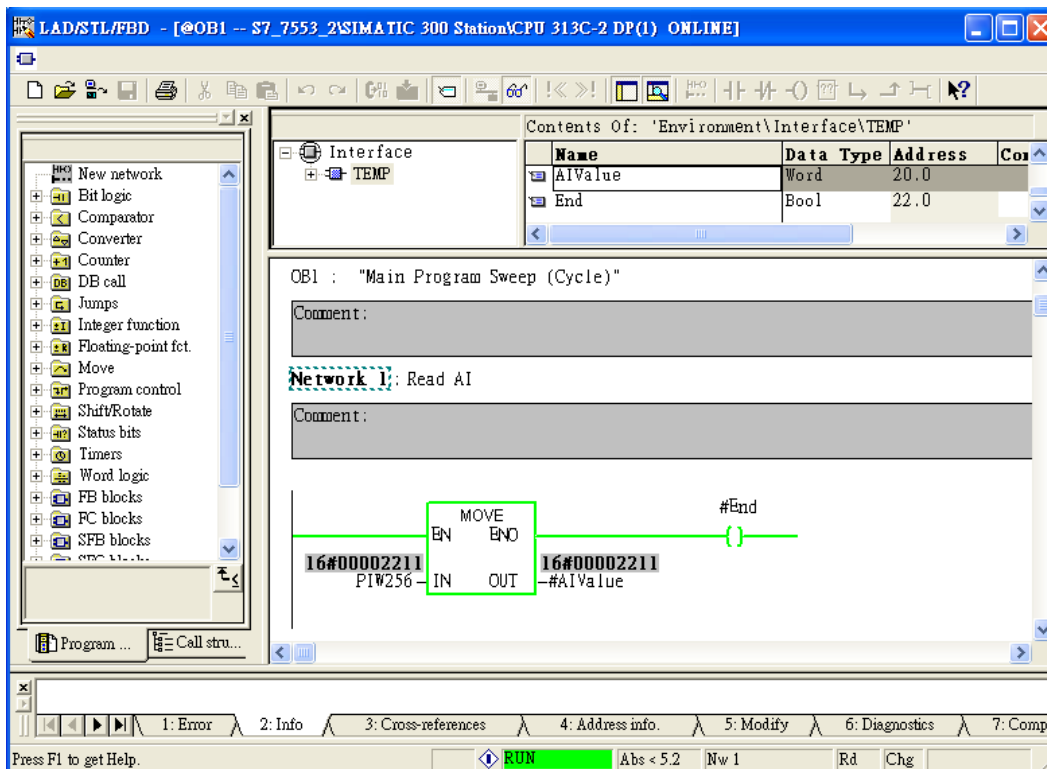
```

    MOVE
    EN  BND  #END
    PIW256 - IN  OUT - #AIValue
  
```

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

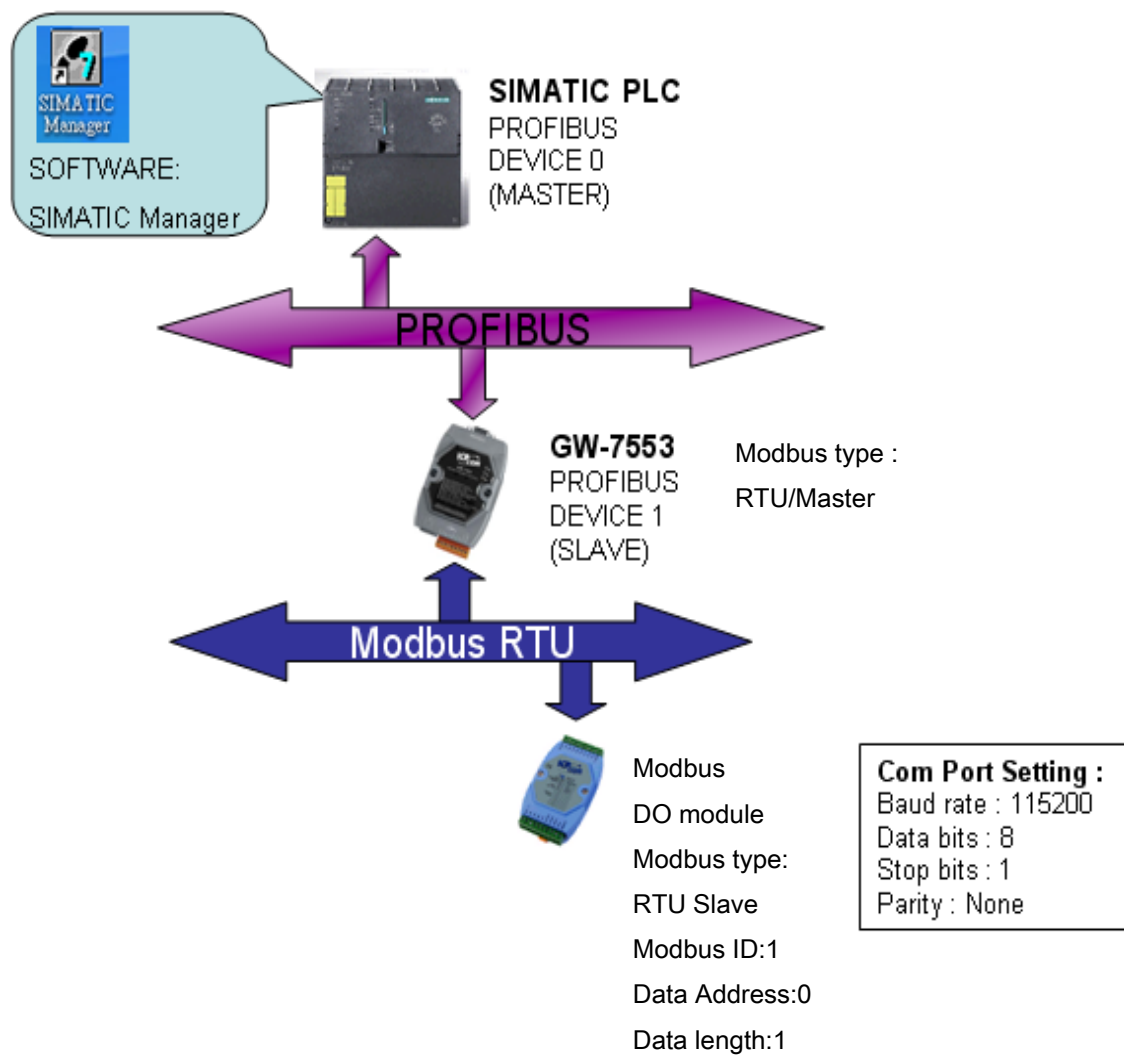


Now the setting procedure has been finished and the user can read the data of the Modbus AI module at address PIW256.



Example 2: PLC writes DO module data to GW-7553.

Write a Modbus RTU DO module (**PROFIBUS Slave** & **Modbus RTU Master**)



SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Add a GW-7553 module

The screenshot shows the SIMATIC HW Config interface for a SIMATIC 300 Station. The main window displays a rack configuration for a PROFIBUS DP master system. The rack contains a CPU313C-2 DP(0) in slot 2. The hardware catalog on the right shows the 'GW-7553' module selected under 'Gateway' > 'GW-7553'. The 'System setting' option is highlighted in red. Below the rack diagram, a table shows the configuration for the GW-7553 module.

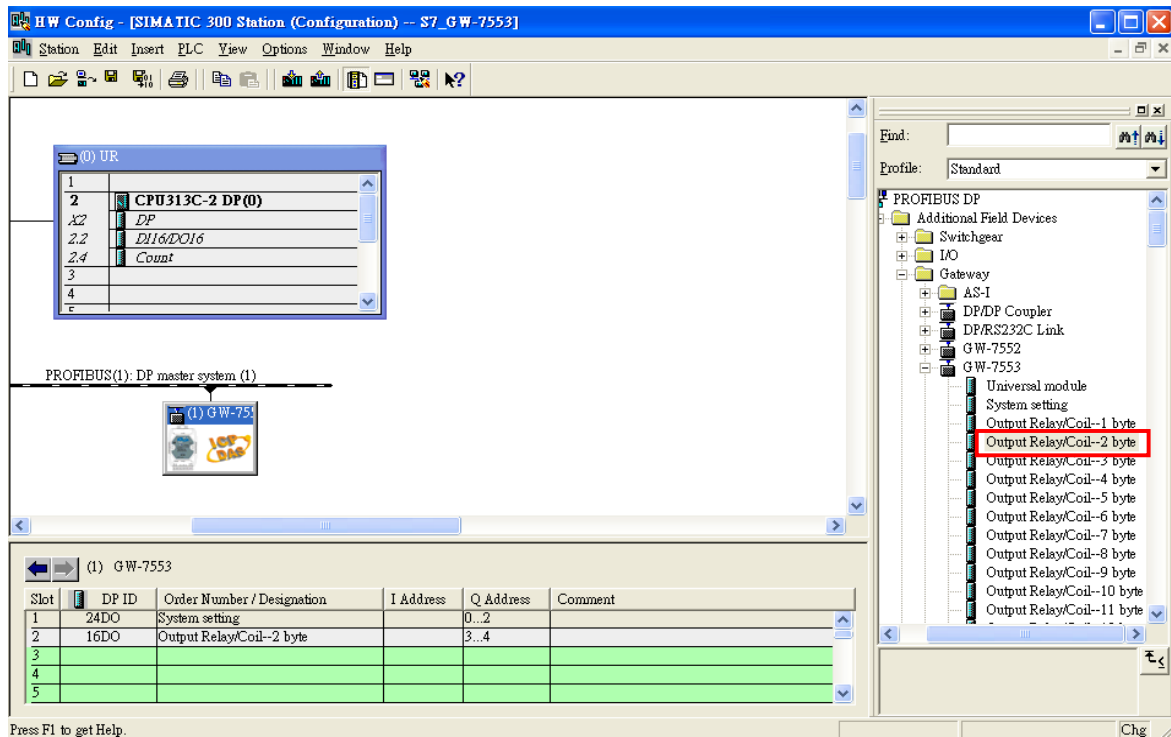
Slot	DP ID	Order Number / Designation	I Address	Q Address	Comment
1					
2					
3					
4					
5					

2. Add a System module

The screenshot shows the SIMATIC HW Config interface after adding a system module. The hardware catalog on the right shows the 'System setting' option highlighted in blue. The table below the rack diagram shows the configuration for the GW-7553 module with a system setting added in slot 2.

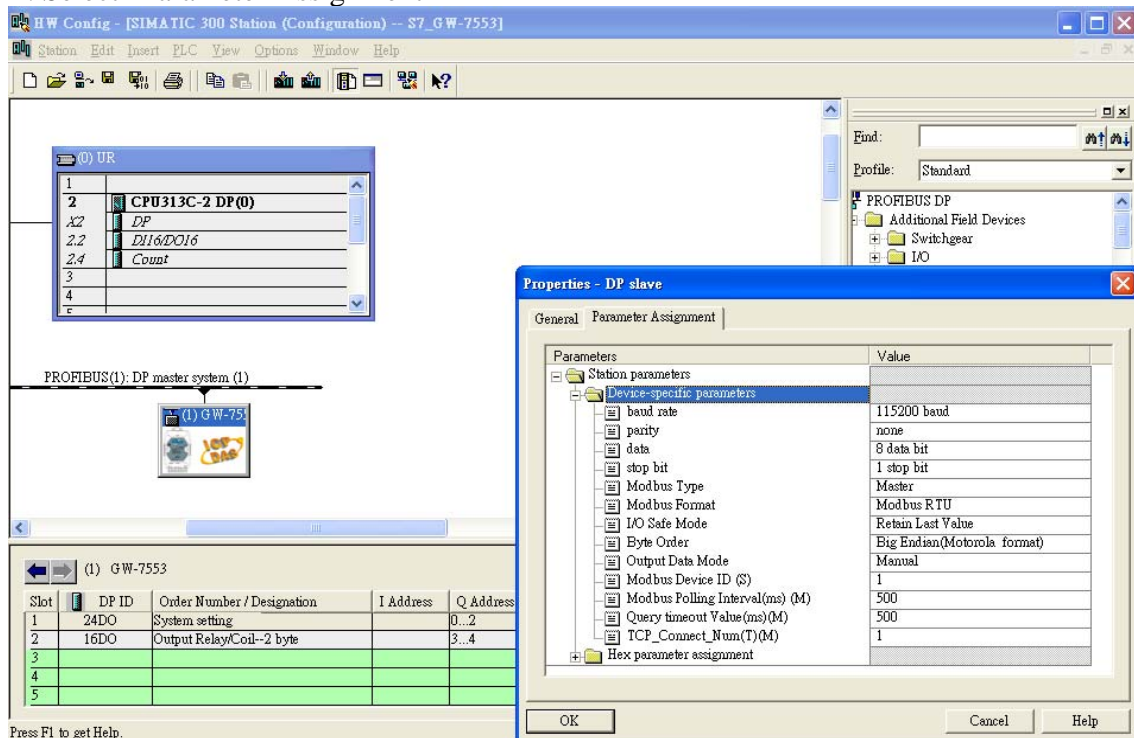
Slot	DP ID	Order Number / Designation	I Address	Q Address	Comment
1					
2	24DO	System setting		0..2	
3					
4					
5					

3. Add “Output Relay/Coil—2 byte” module



Step 2: Set the parameters of the GW-7553

1. Double click GW-7553 icon
2. Select “Parameter Assignment”

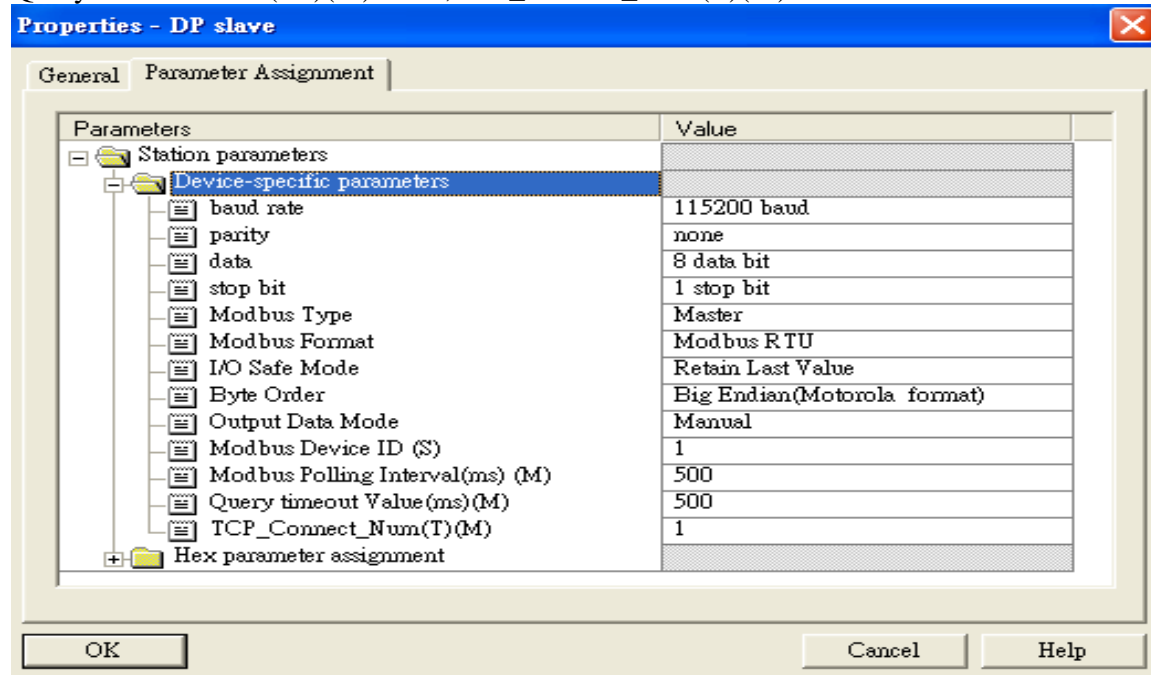


3. Set common parameters of the GW-7553

Common parameters →

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; **Modbus type: Master**
Modbus Format: Modbus RTU; I/O Safe Mode: Retain Last Value; **Byte Order: Big Endian**

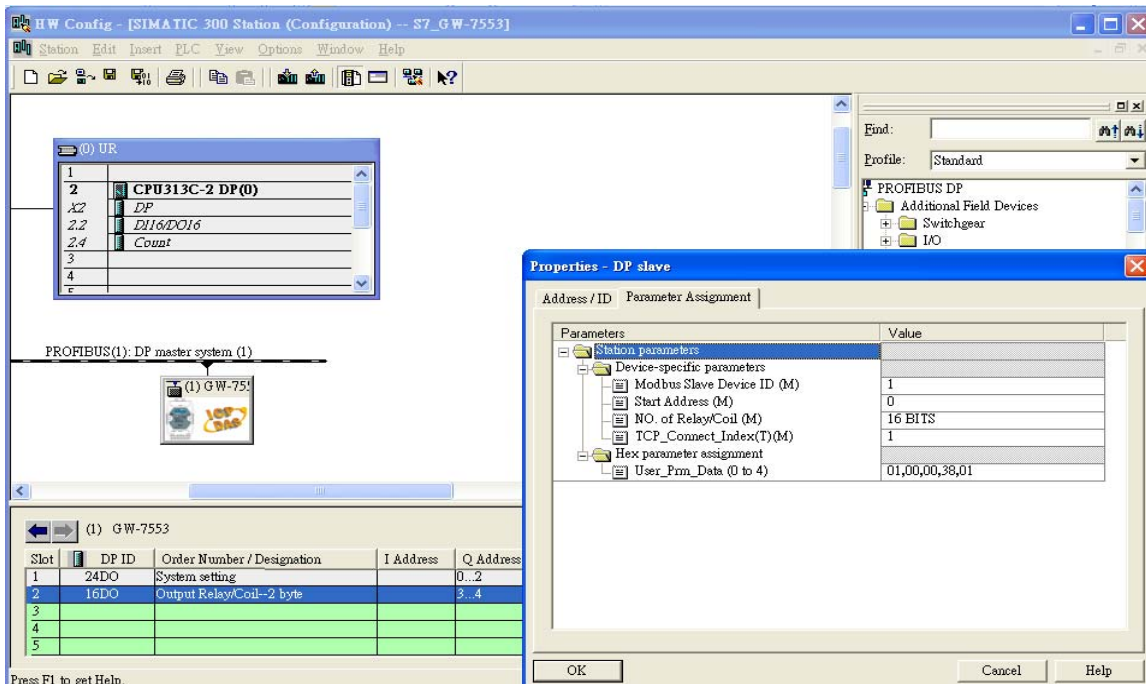
Output Data Mode: Manual; Modbus Device ID (S): 1; Modbus Polling Interval(ms) (M): 500
 Query timeout value(ms)(M): 500 ;TCP_connect_Num(T)(M): 1



4. Set module parameters of the GW-7553

(1) Double click "Output Relay/Coil—2 byte" module

(2) Select "Parameter Assignment"



5. Setup "input register—1 word" module parameters

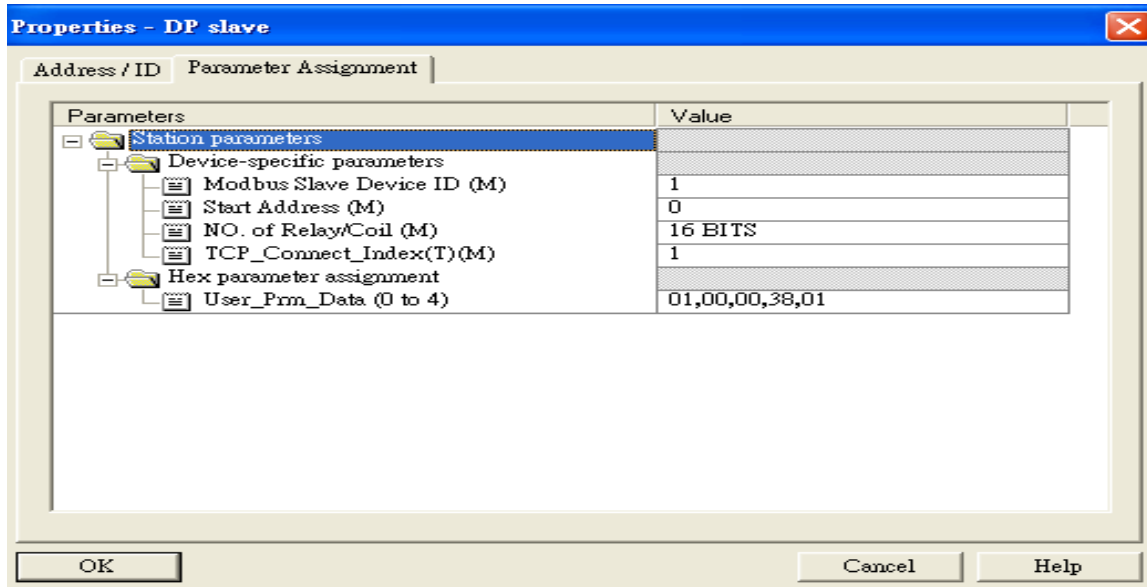
Module parameters →

Modbus Slave Device ID: 1

Slave Address: 0 (Protocol address (base 0))

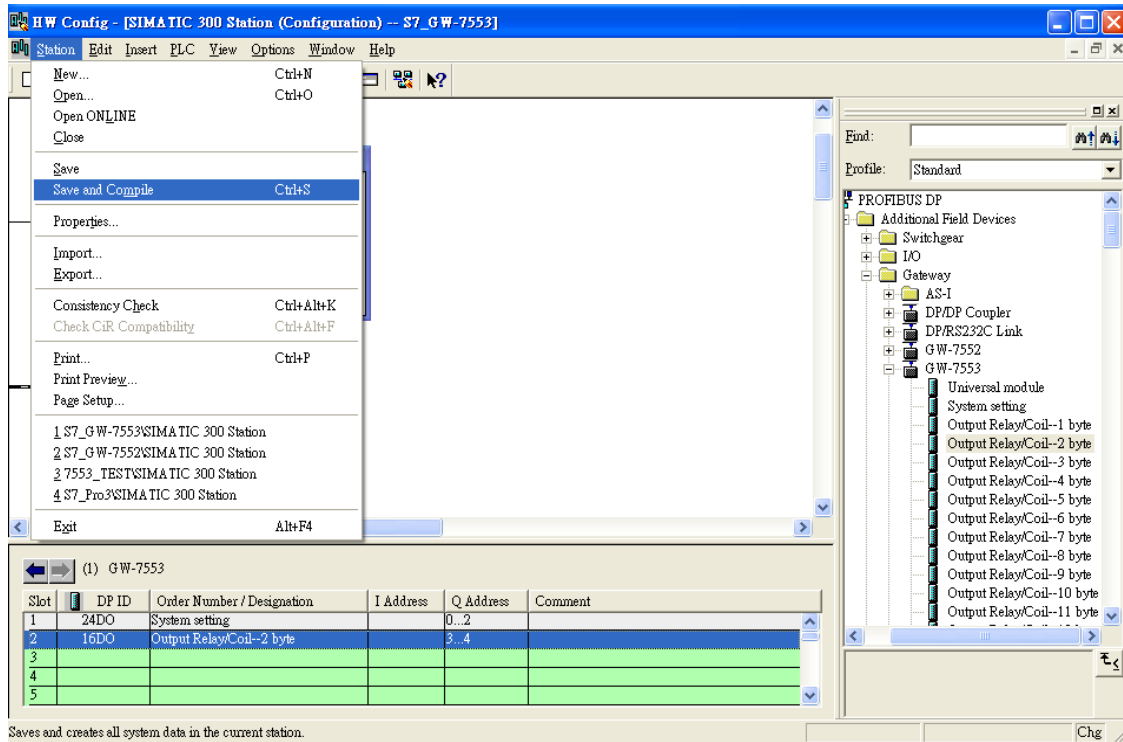
NO. of Relay/Coil(M):16 Bits

TCP_Connect_Index(T)(M): 1

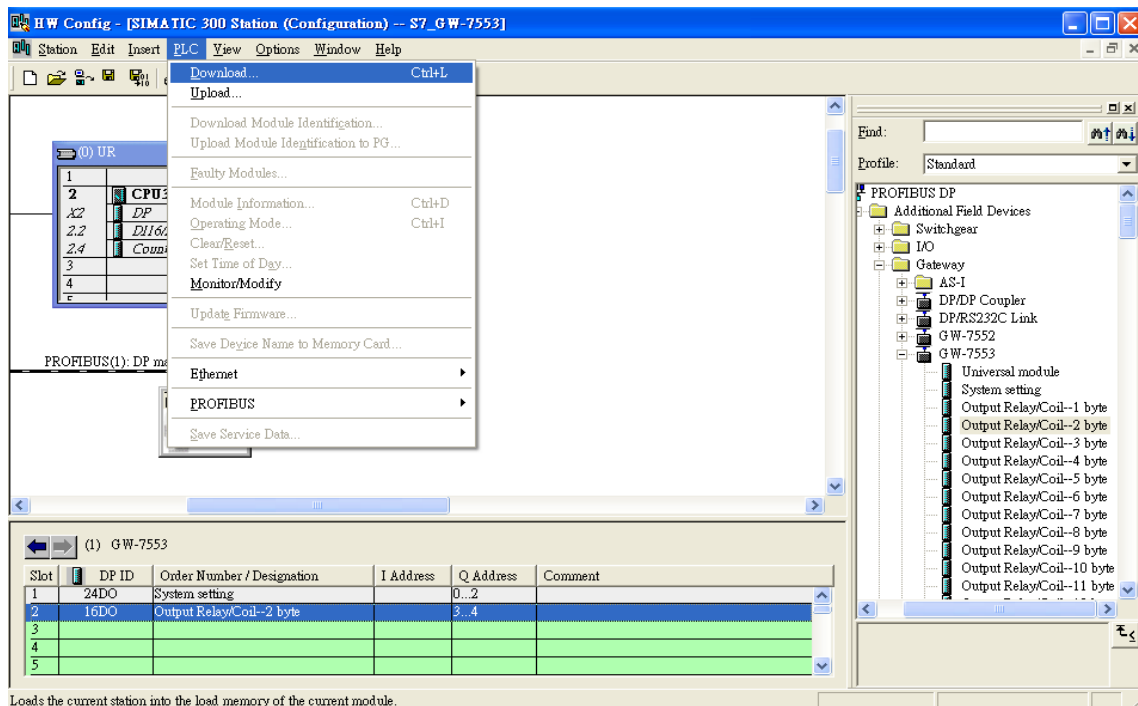


Step 3: Download the HW settings into SIMATIC PLC

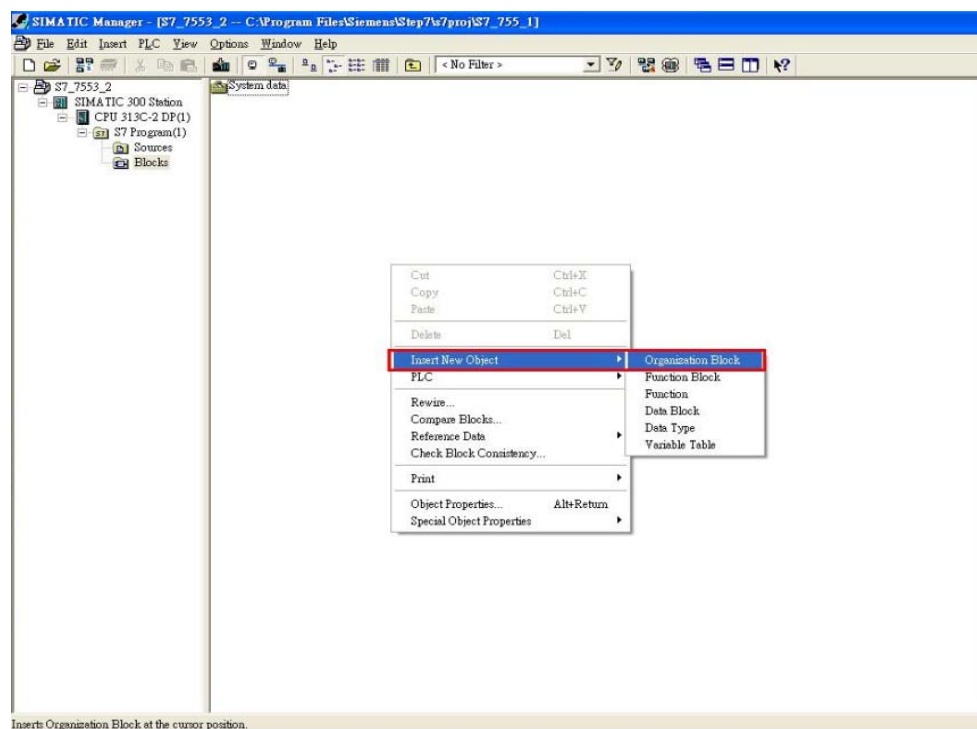
1. Save and Compile

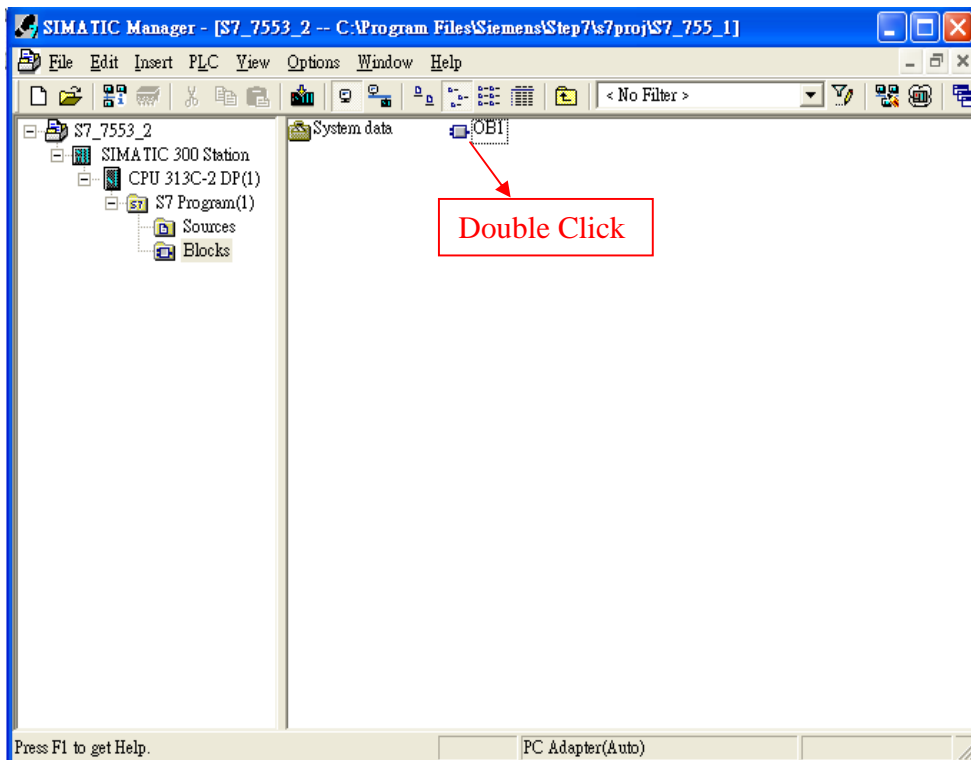
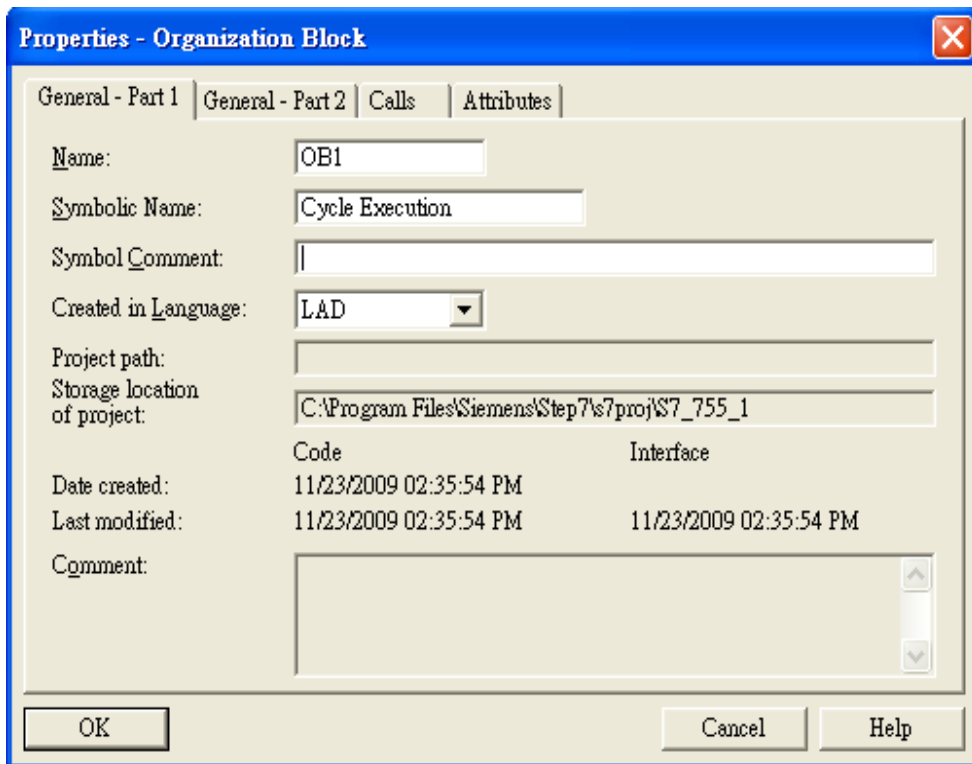


2. Download HW setting into STEP7



Step 4: Insert a new Organization Block (OB1)





Step 5: Edit OB1

Variables used in the example LD Program:

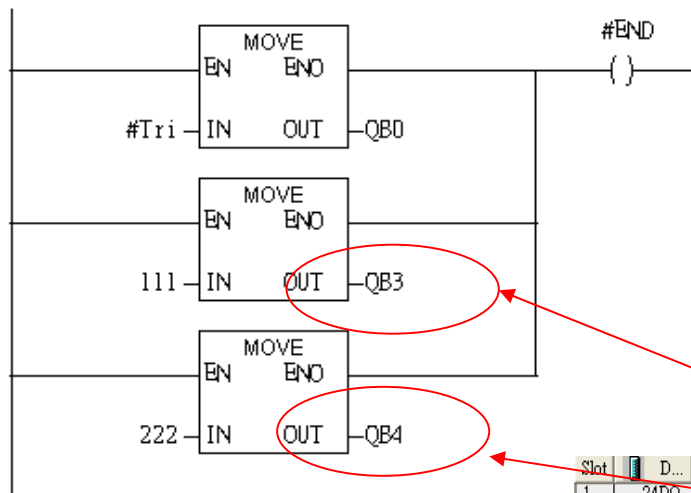
Contents Of: 'Environment\Interface\TEMP'				
	Name	Data Type	Address	Comment
	END	Bool	20.0	
	Tri	Int	22.0	

OB1 : "Main Program Sweep (Cycle)"

PROFIBUS slave
Modbus master

Network 1 : QB0 add "1: then PLC will send QB3 & QB4 out.

2 byte 16DO

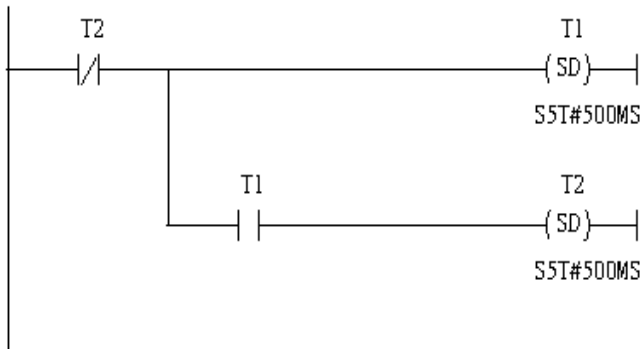


Slot	D...	Order Number / Designation	I Address	Q Address
1	24DO	System setting		0..2
2	16DO	Output Relay/Coil-2 byte		3..4
3				
4				
5				

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

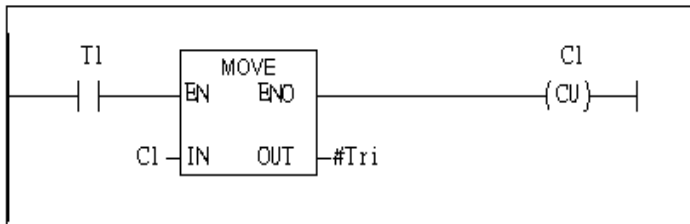
Network 2 : Timer T1 & T2

Using T2 trigger T1



Network 3 : Counter C1

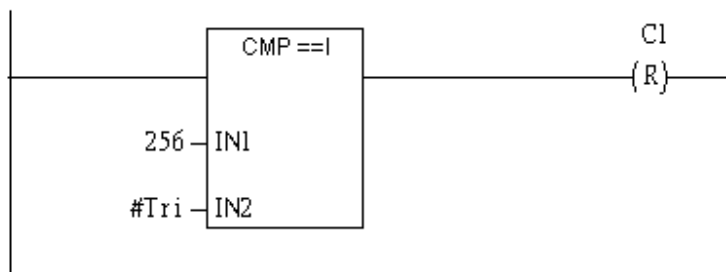
If counter(C1) add "1" and Tri will add "1" , too .



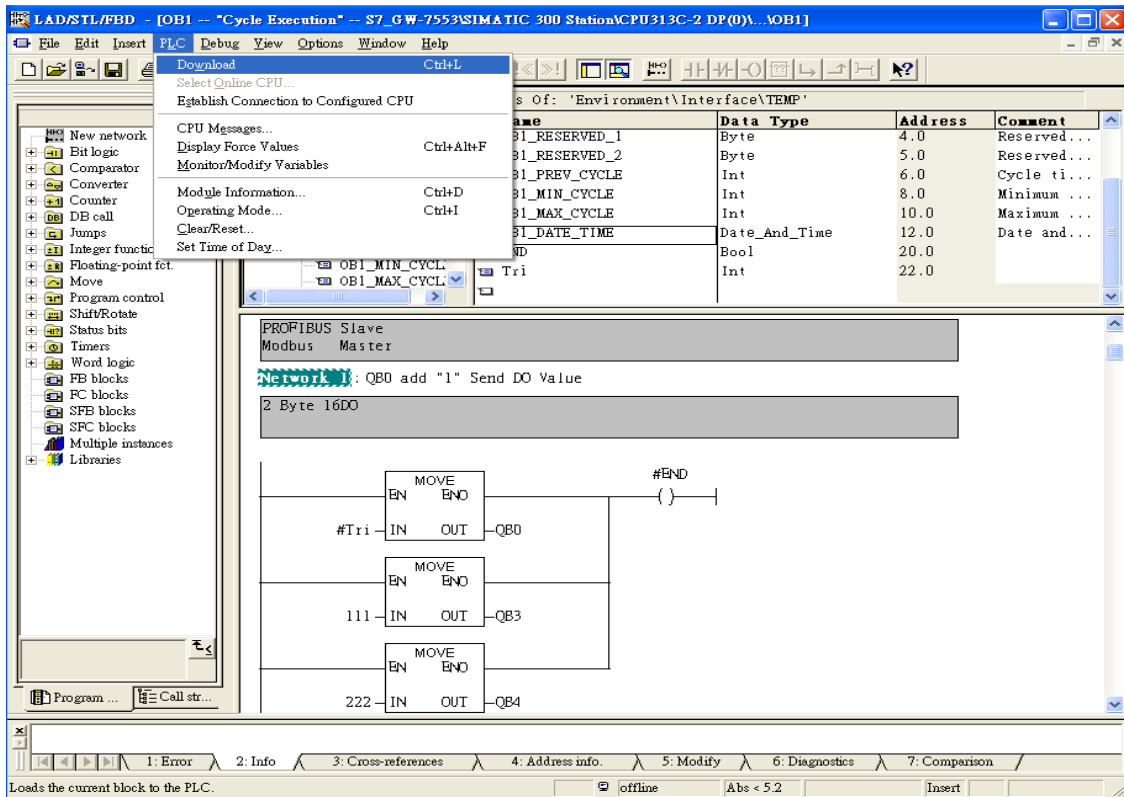
If Tri is equal to 256 then reset counter (C1)

Network 4 : Compare Tri & 256

If Tri is equal to 256 ,C1 will reset.



Step 6: Download the settings into SIMATIC PLC



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



Now the setting procedure has been finished and the user can write the data to the Modbus DO module at address QB3 & QB4.

OB1 : "Main Program Sweep (Cycle)"

PROFIBUS slave
Modbus master

Network 1 : QB0 add "1": then PLC will send QB3 & QB4 out.

2 byte 16DO

