GW-7553 (Modbus RTU master)

example for SIMATIC STEP 7

Example 1:Reads DO module data from GW-7553(Modbus FC01).

Example 2: Reads DI module data from GW-7553(Modbus FC02).

Example 3: Reads AO module data from GW-7553(Modbus FC03).

Example 4: Reads AI module data from GW-7553(Modbus FC04).

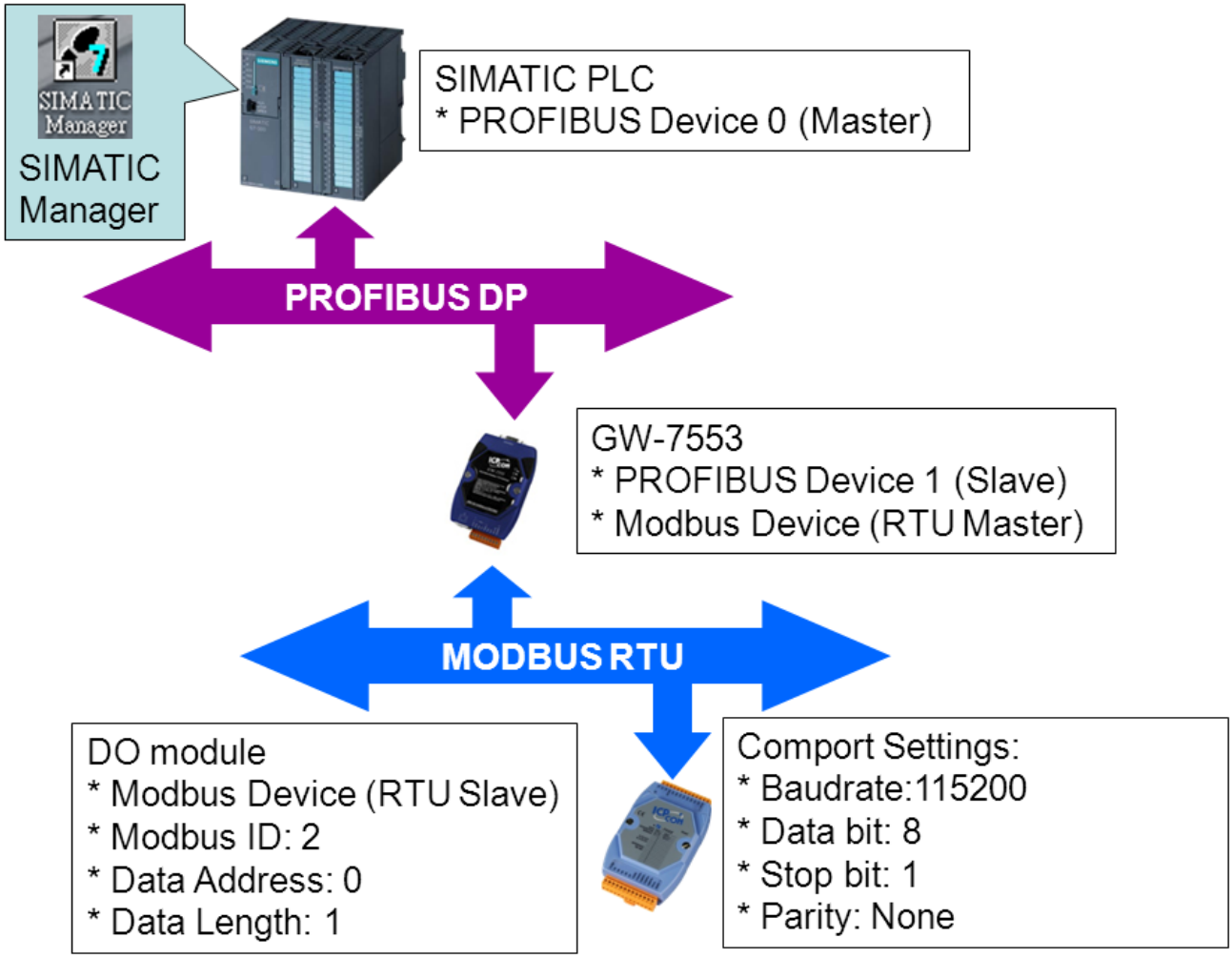
Example 5: Writes DO module data from GW-7553(Modbus FC05,15).

Example 6: Writes AO module data from GW-7553(Modbus FC06,16).

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Example 1: PLC reads DO module data from GW-7553.
(Modbus FC01)

Read a Modbus RTU DO module (PROFIBUS Slave & Modbus RTU/Master)

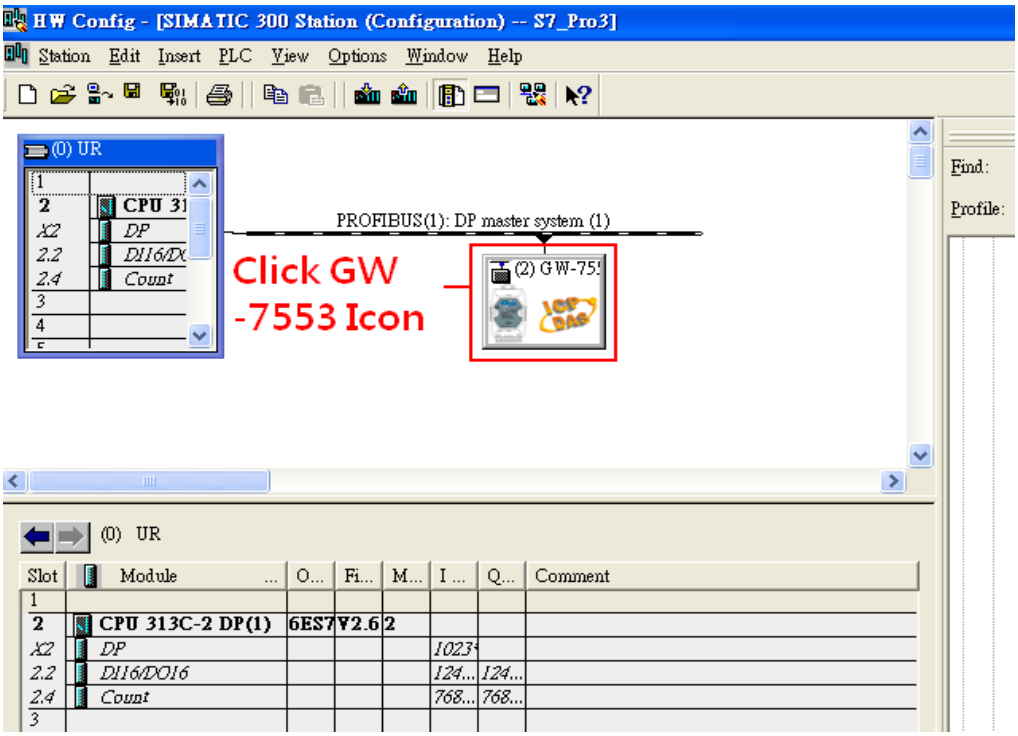


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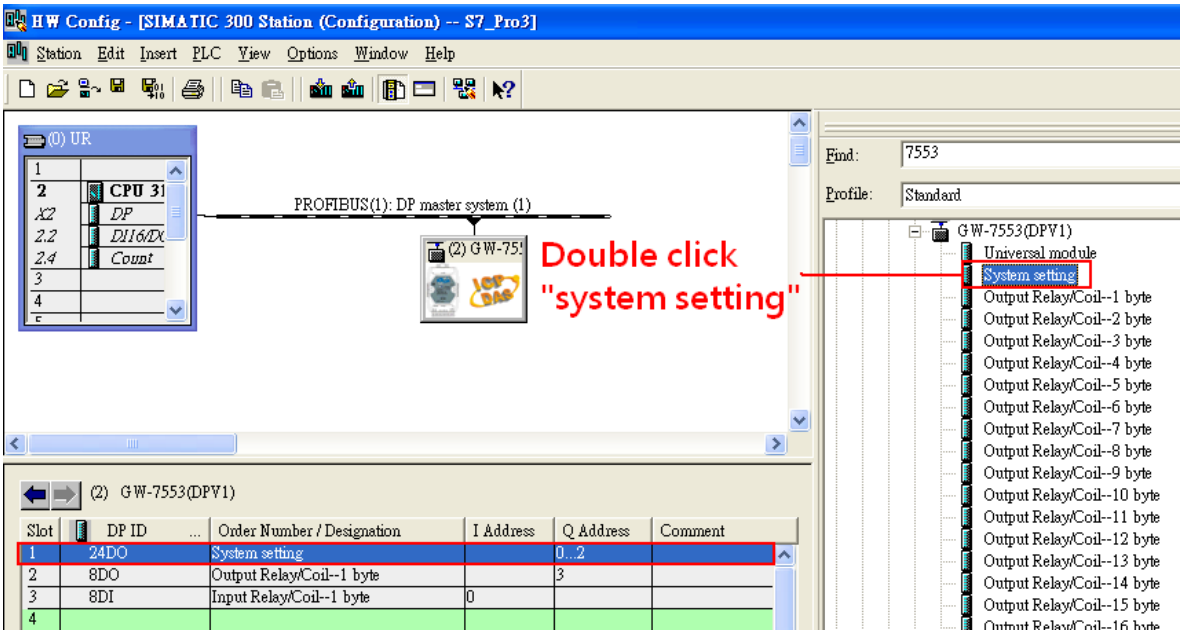
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Select GW-7553 module

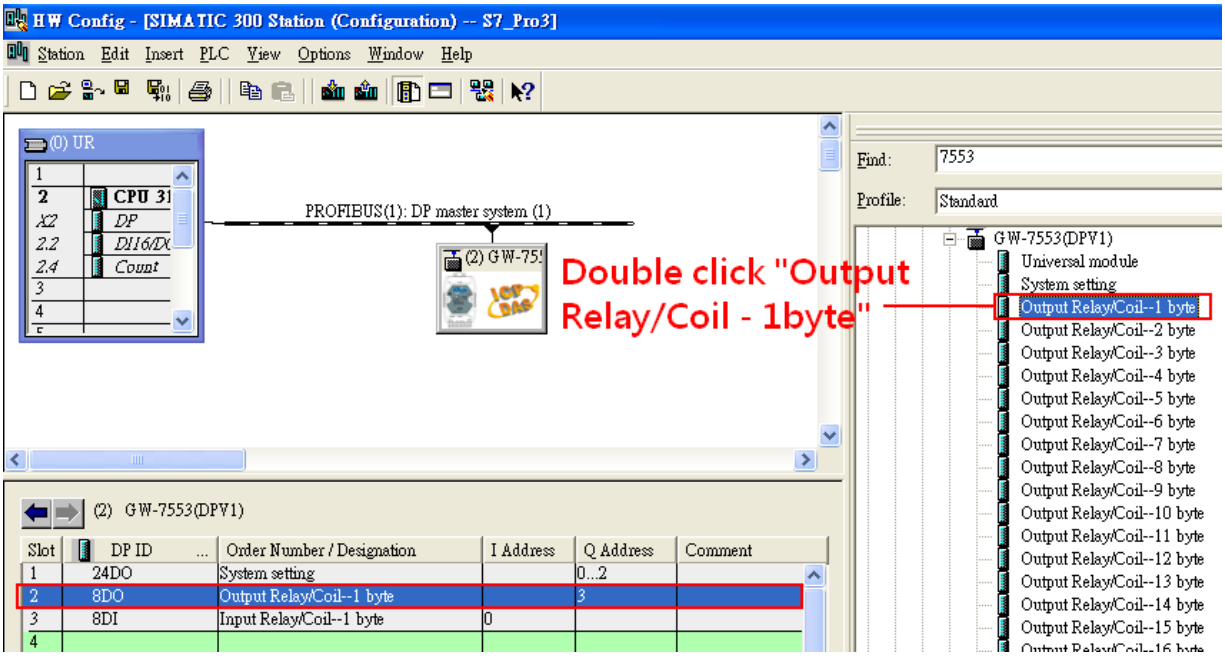


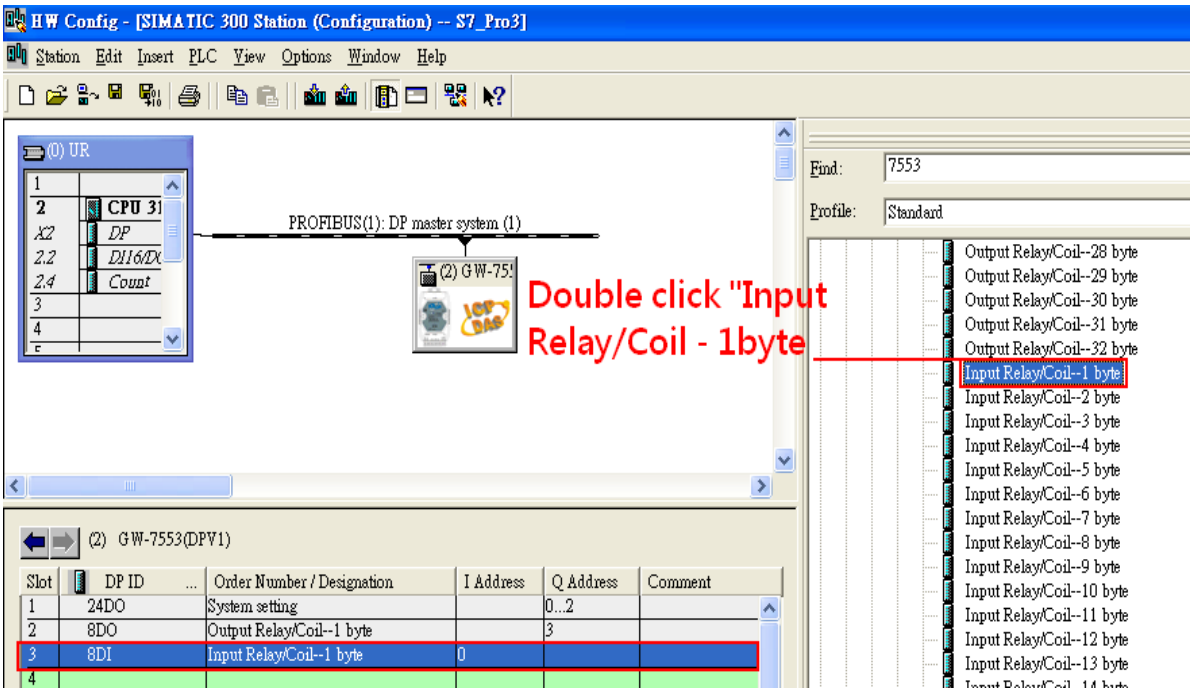
2. Add a System setting module



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3. Add “Output Relay/Coil – 1 byte” and “Input Relay/Coil – 1byte”



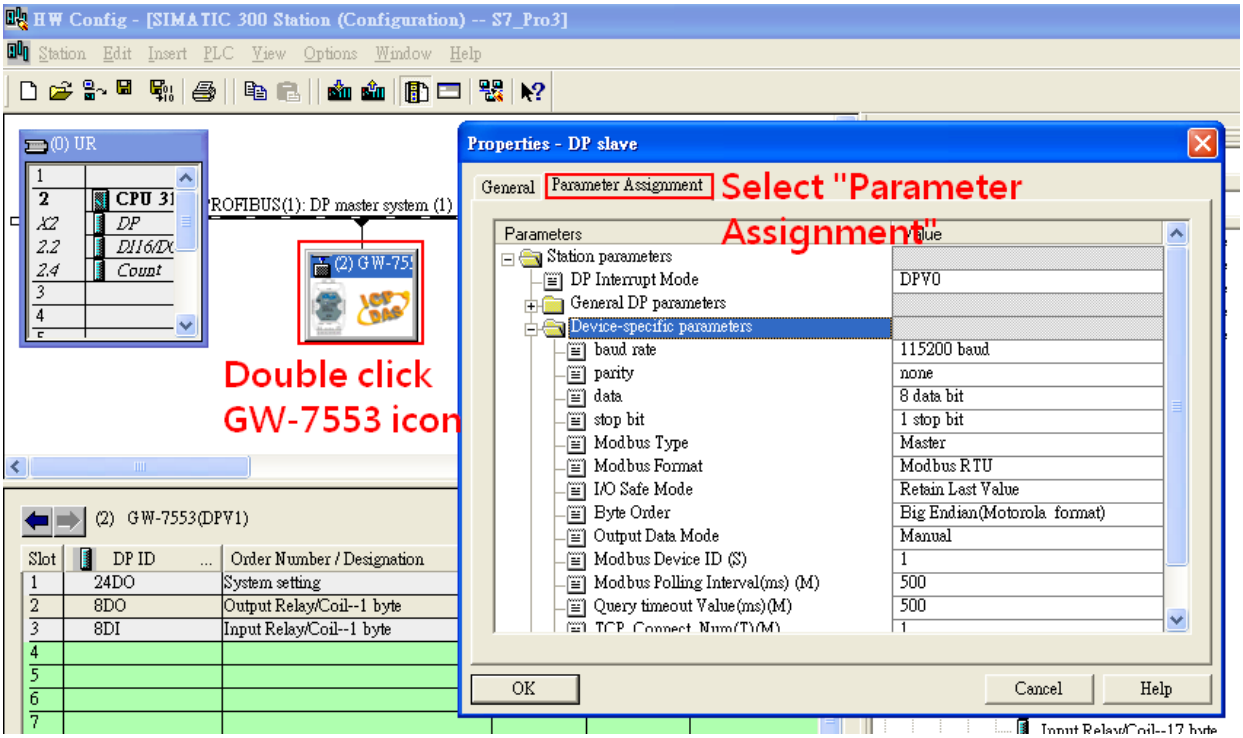


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Step 2: Setup the parameters of the GW-7553

1. Double click GW-7553 icon

2. Select “Parameter Assignment”

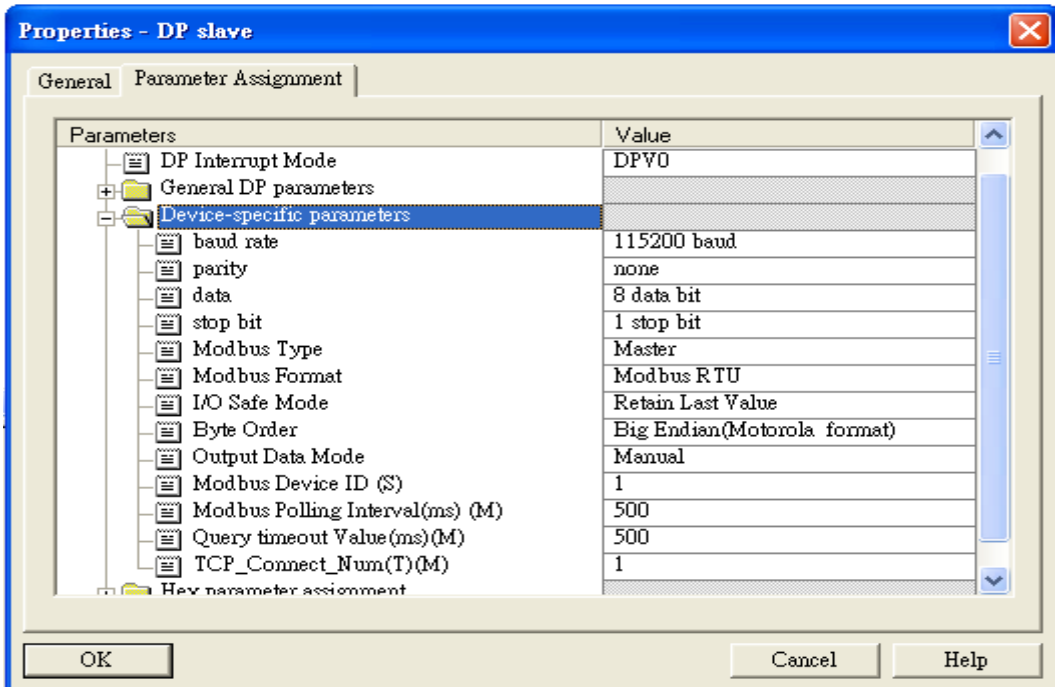


3. Set common parameters of the GW-7553

Common parameters➔

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; Modbus type: Master

Modbus Format: Modbus RTU; Byte Order: Big Endian

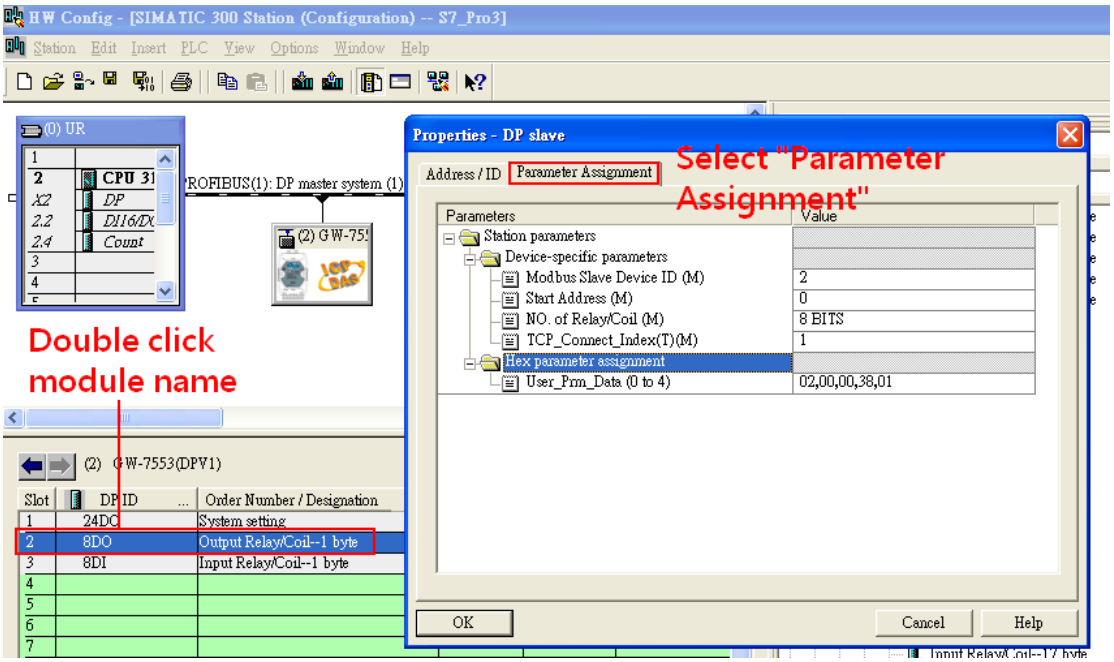


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4. Set module parameters of the GW-7553

(1)Double click “Output Relay/Coil – 1 byte” module

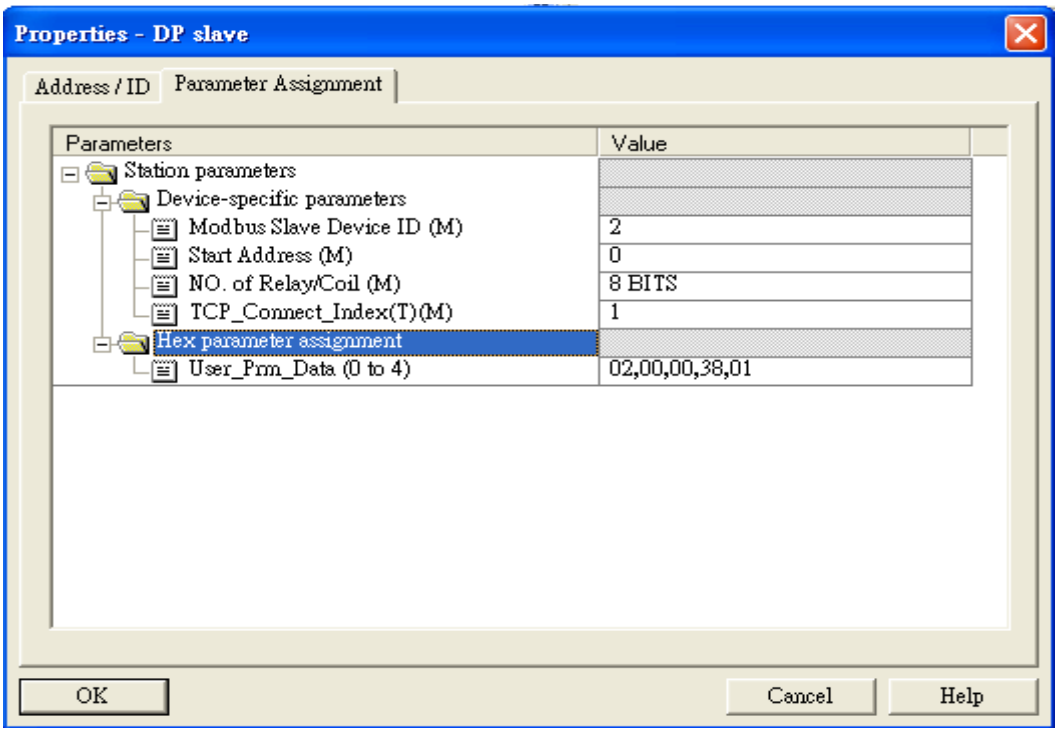
(2)Select “Parameter Assignment”



5. Setup “Output Relay/Coil – 1 byte” module parameter

Module parameters➔

Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0))

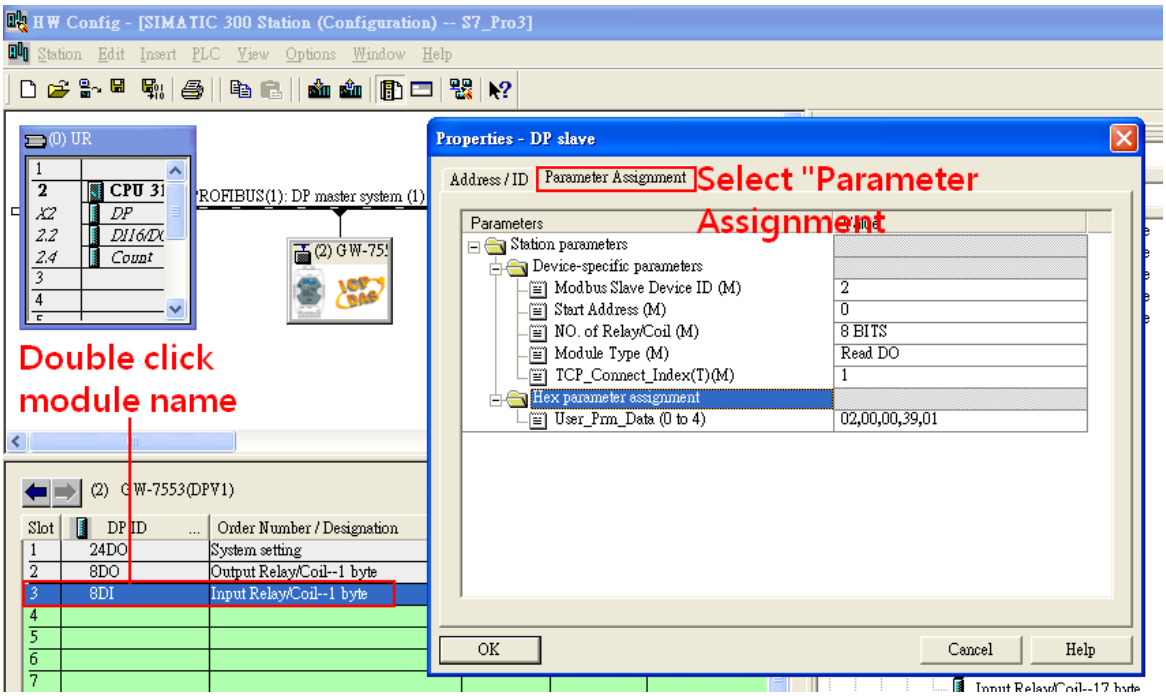


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6. Set module parameters of the GW-7553

(1)Double click “Input Relay/Coil – 1 byte” module

(2)Select “Parameter Assignment”

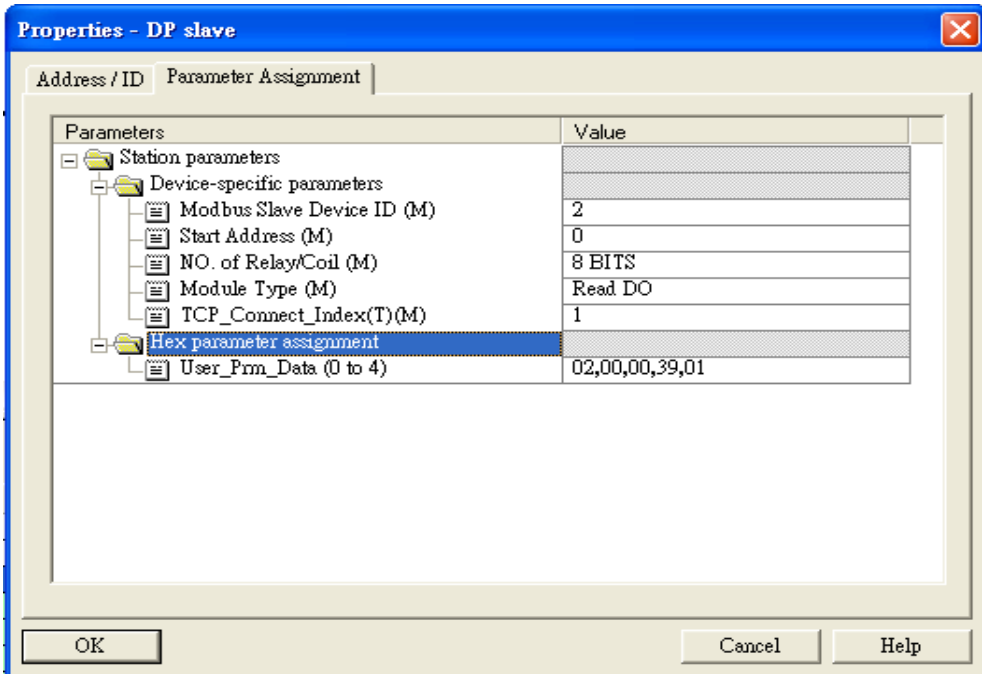


7. Setup “Input Relay/Coil – 1 byte” module parameter

Module parameters➔

Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0))

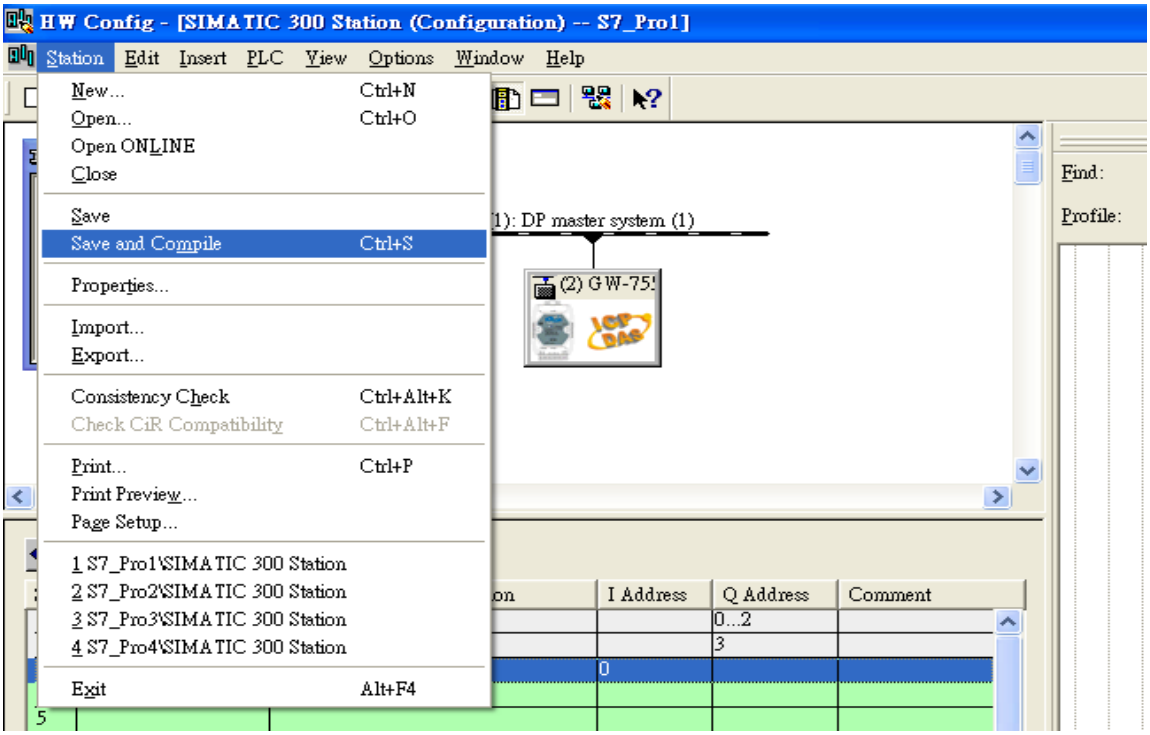
Module Type: Read DO, click ok.



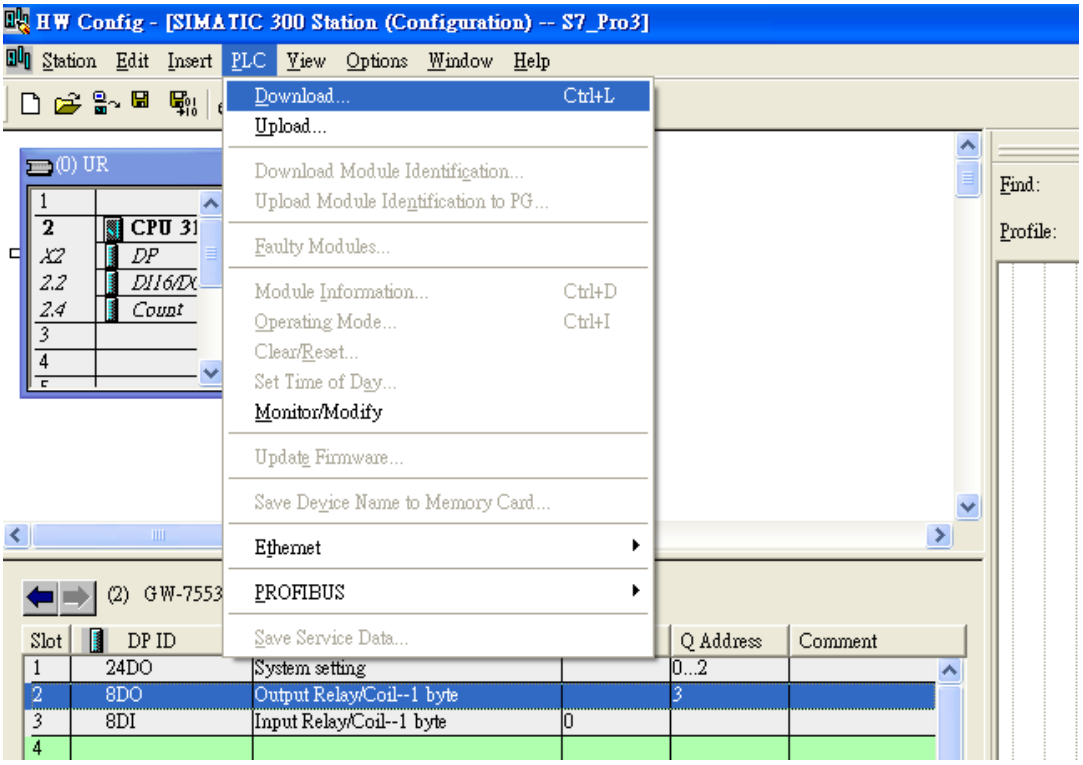
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Step 3: Download the HW settings into SIMATIC PLC

1. Save and Compile

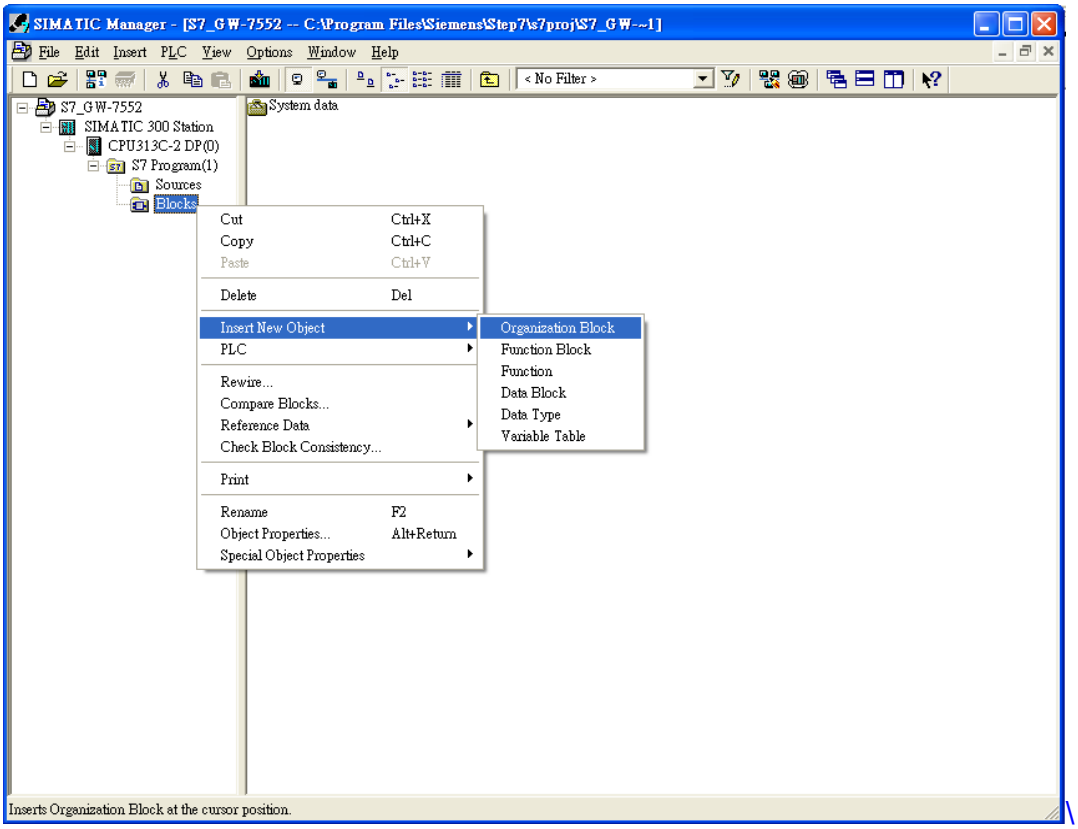


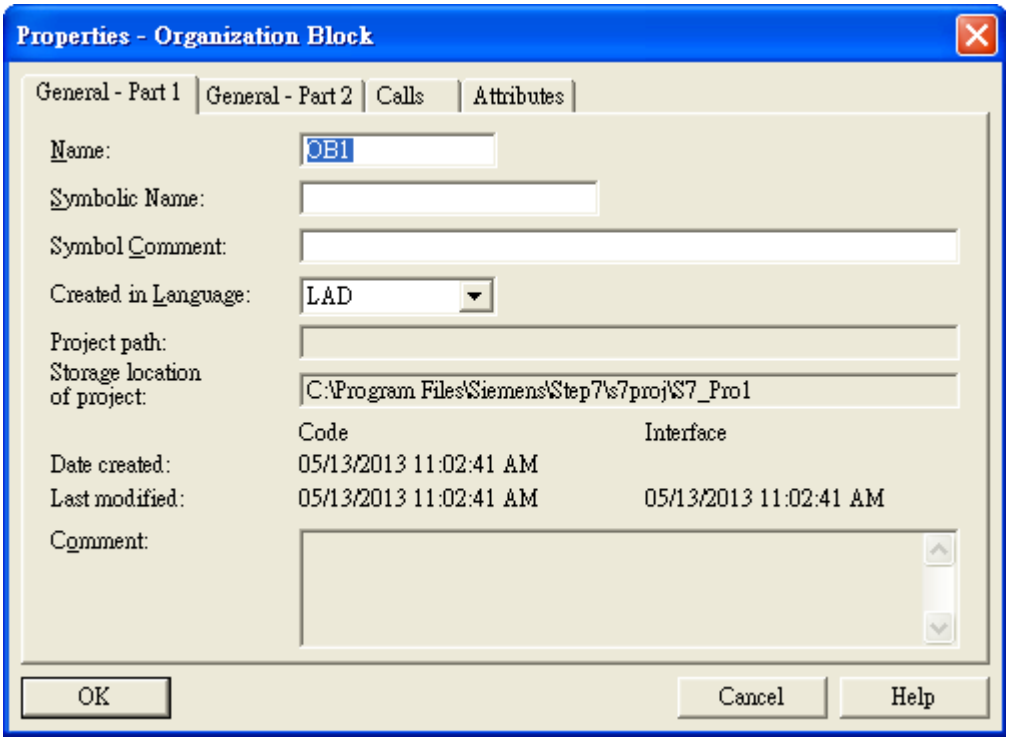
2. HW settings into SIMATIC PLC



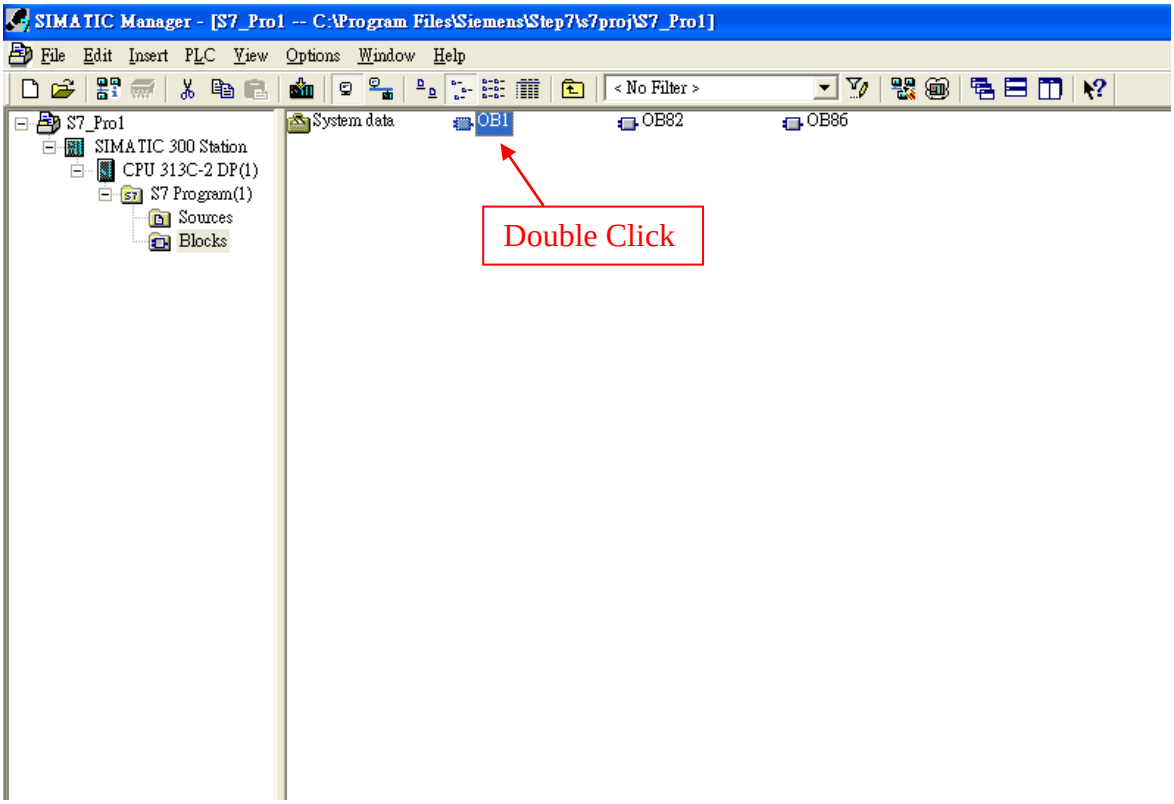
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Step 4: Insert a new Organization Block (OB1,OB82,OB86)





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Step 5: Edit OB1

Variables used in the example LD Program:

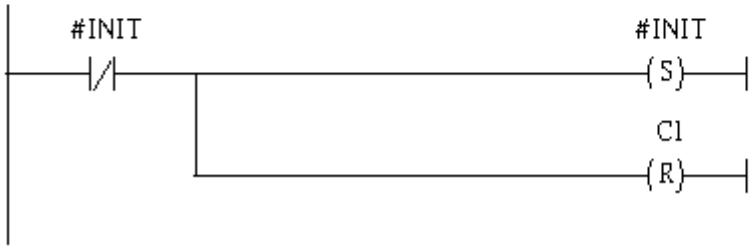
	Name	Data Type	Address	Comment
	END	Bool	20.0	
	INIT	Bool	20.1	
	Tri	Int	22.0	
	DIValue	Byte	24.0	

OB1 : "Main Program Sweep (Cycle)"

PROFIBUS Slave
Modbus Master

Network 1 : Reset Counter(C1)

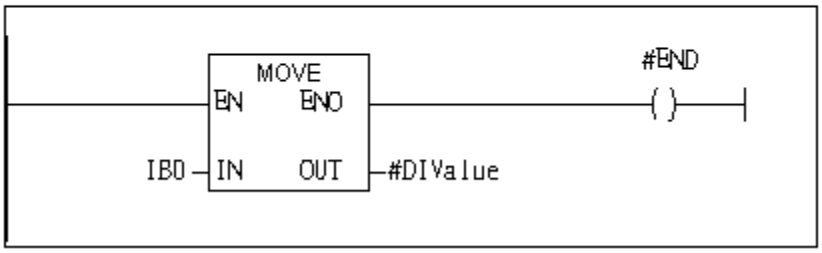
Reset Counter (C1)



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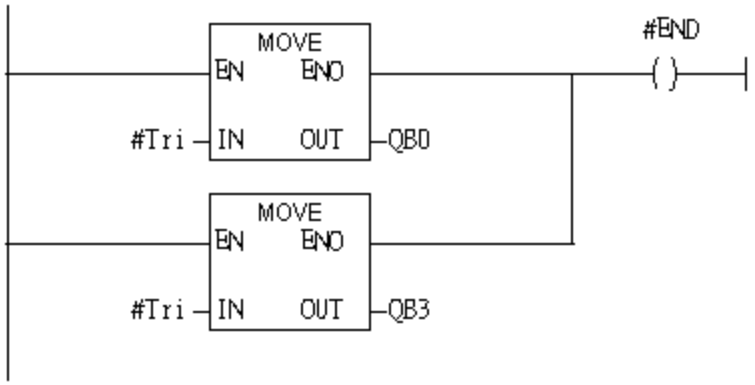
Network 2: Title:

Comment:



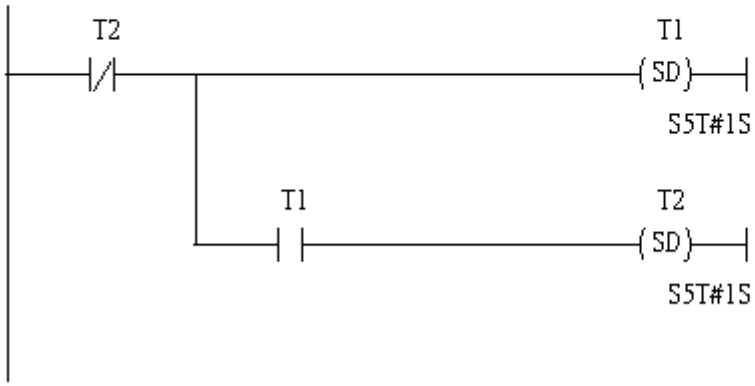
Network 3: QB0 add "1" then PLC will send QW3 out.

1 byte DO



Network 4: Timer T1 & T2

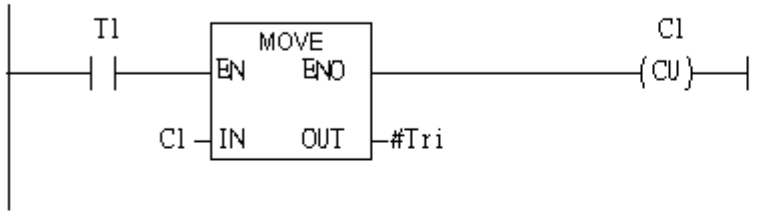
Using T2 trigger T1



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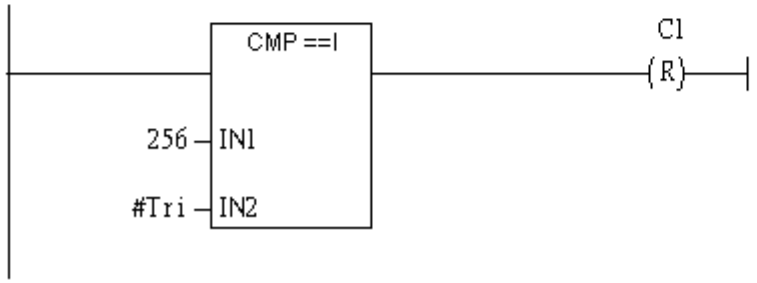
Network 5 : Counter C1

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

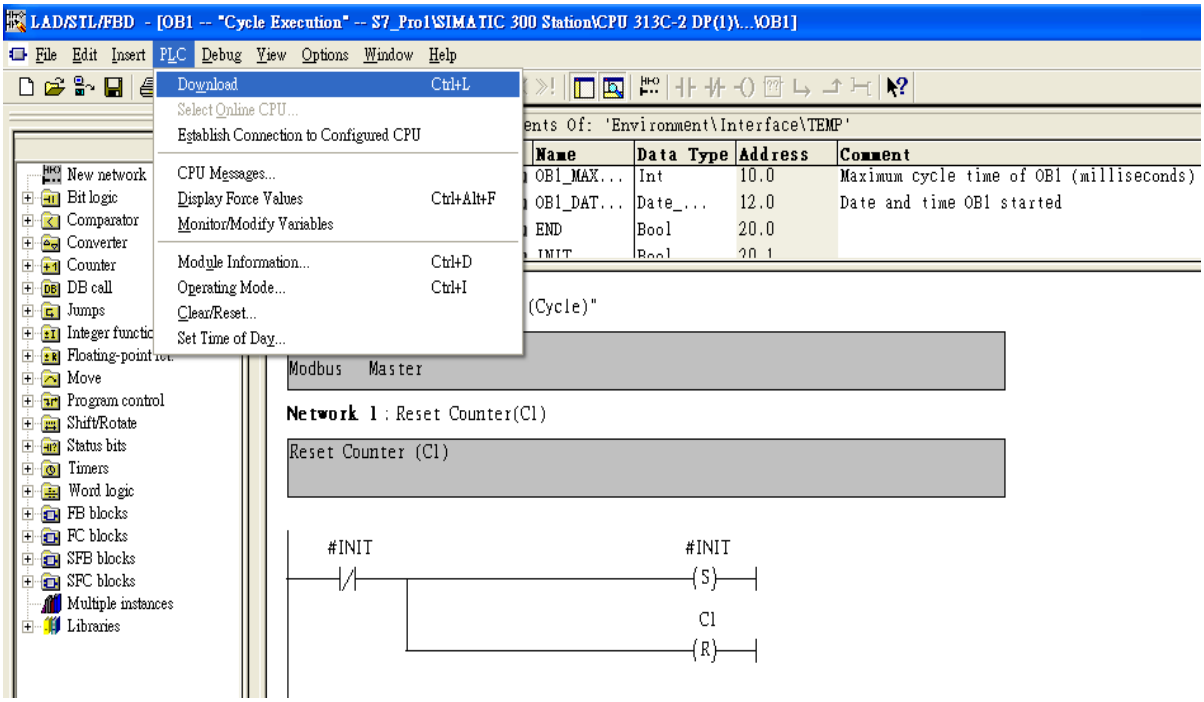


Network 6 : Compare Tri & 256

If Tri is equal to 256,C1 will reset



Step 6: Download the settings into SIMATIC PLC

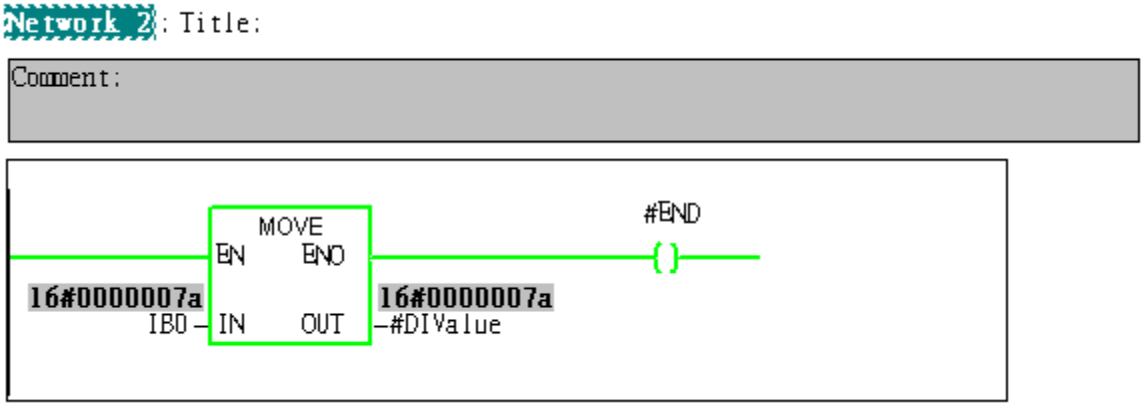


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Step 7: Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



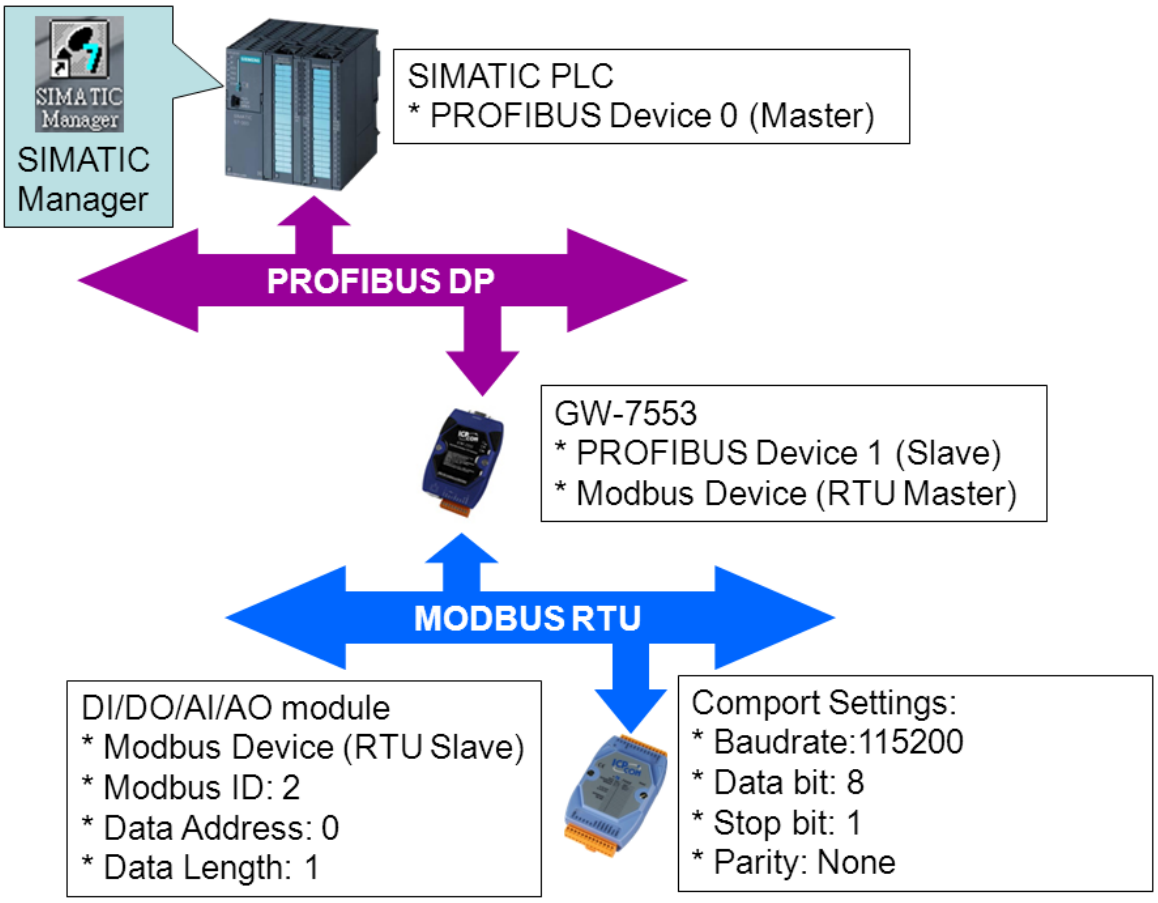
Now the setting procedure has been finished and the user can read the data to the Modbus DO module at address IB0.



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Example 2: PLC reads DI module data from GW-7553. (Modbus FC02)

Read a Modbus RTU DI module (PROFIBUS Slave & Modbus RTU/Master)

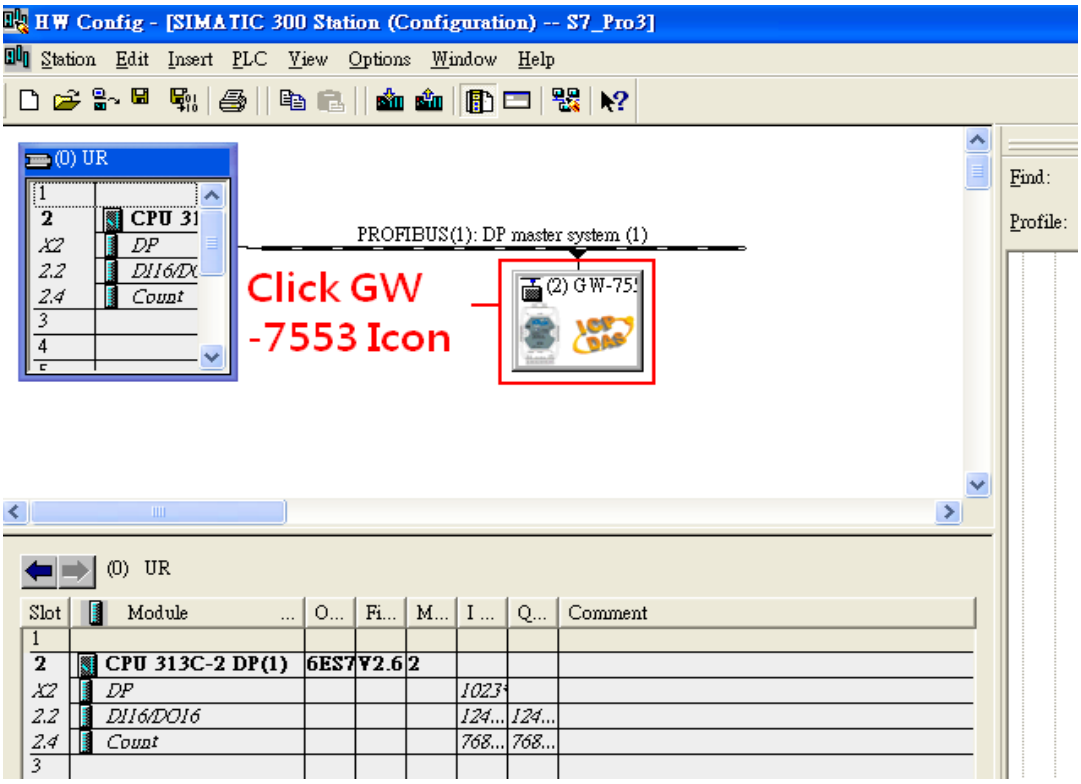


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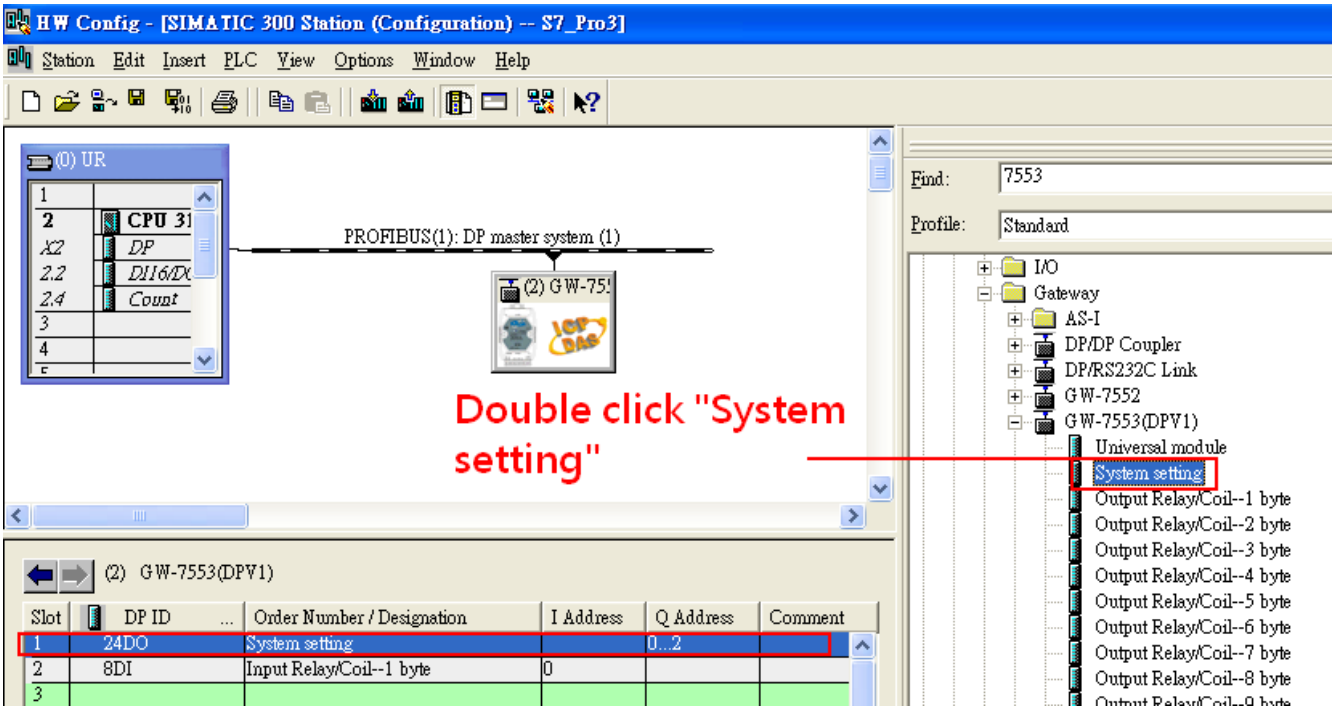
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Select GW-7553 module

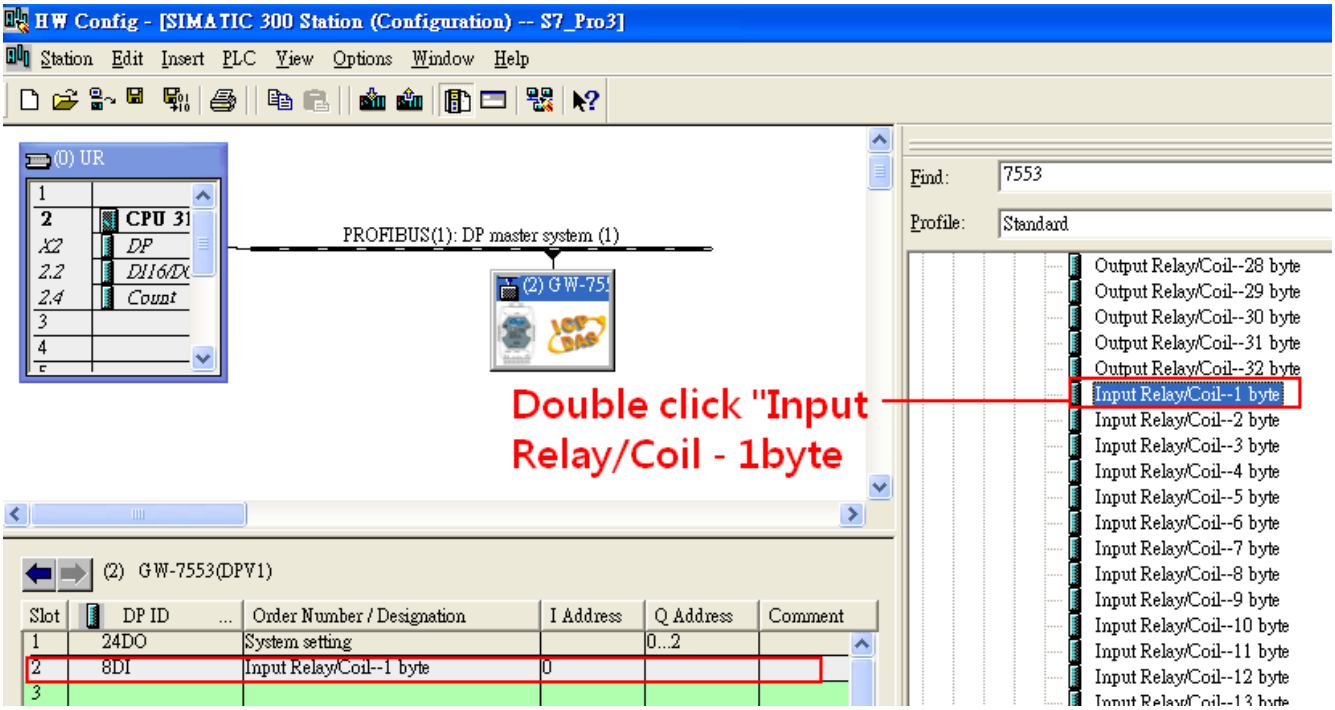


2. Add a System setting module



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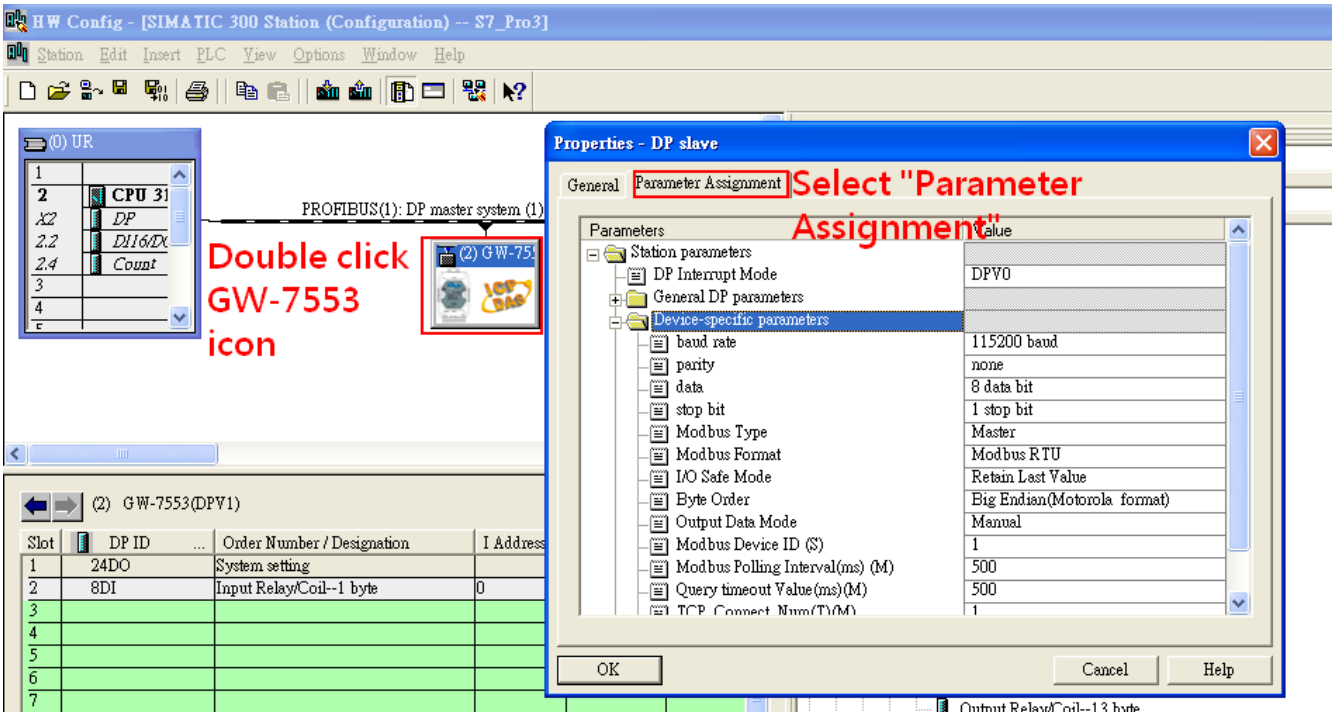
3. Add “Input Relay/Coil—1 byte” module



Step 2: Setup the parameters of the GW-7553

1. Double click GW-7553 icon

2. Select “Parameter Assignment”



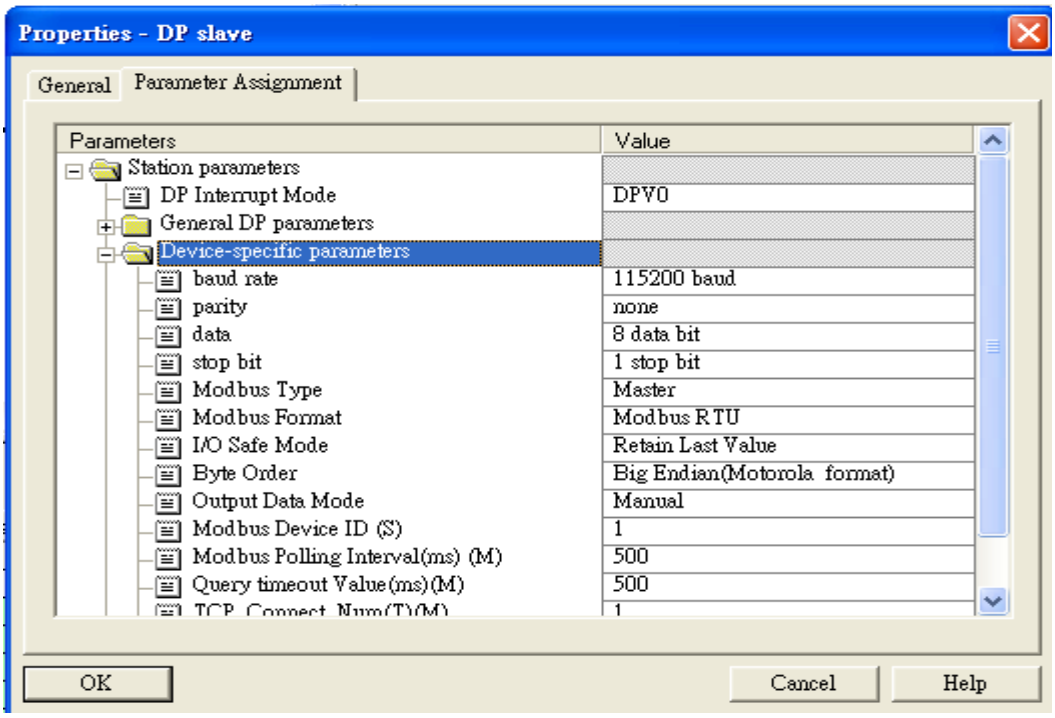
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3. Set common parameters of the GW-7553

Common parameters➔

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; Modbus type: Master

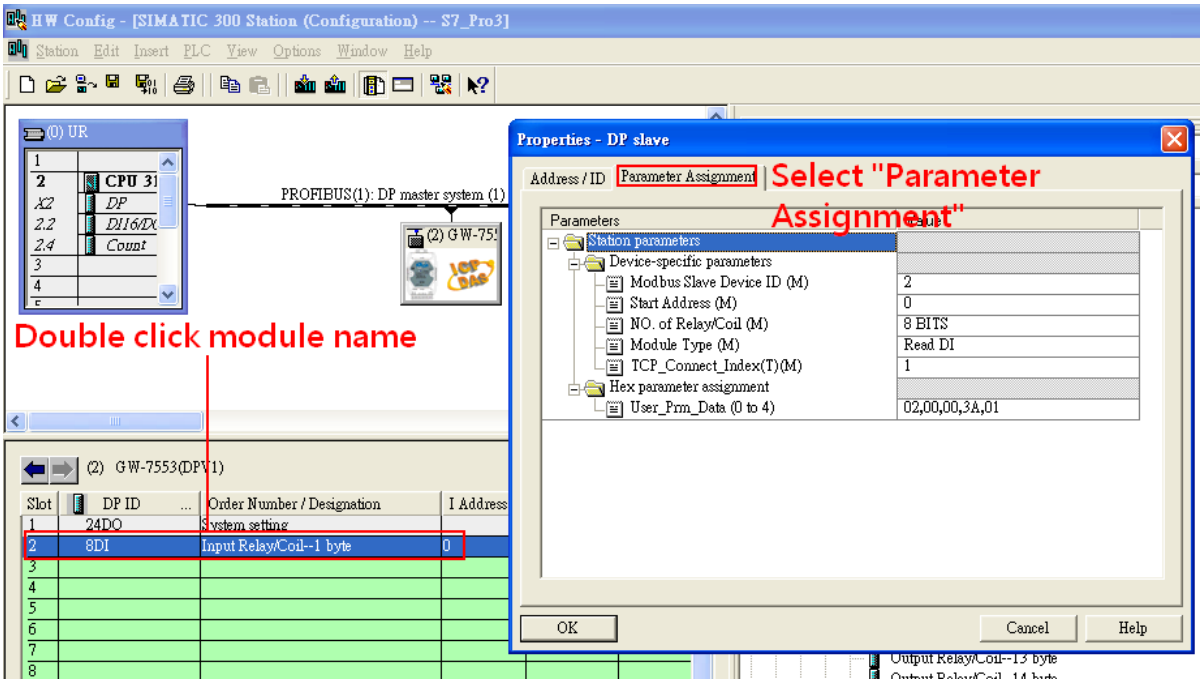
Modbus Format: Modbus RTU; Byte Order: Big Endian



4. Set module parameters of the GW-7553

(1)Double click “Input Relay/Coil—1 byte” module

(2)Select “Parameter Assignment”



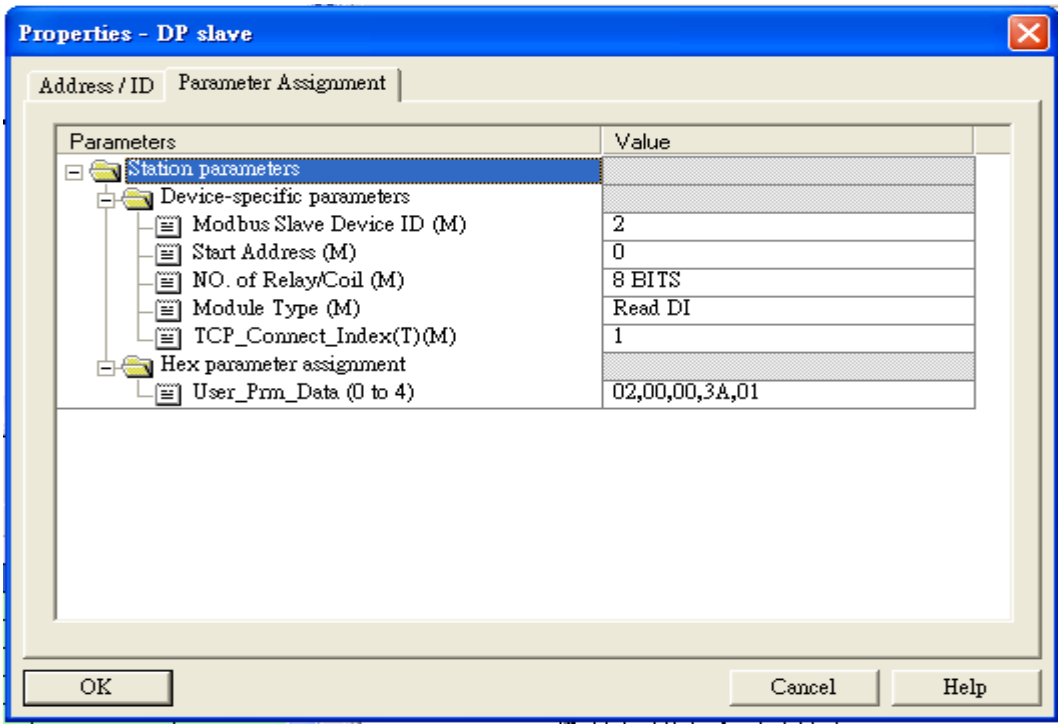
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5. Setup “Input Relay/Coil—1 byte” module parameters

Module parameters➔

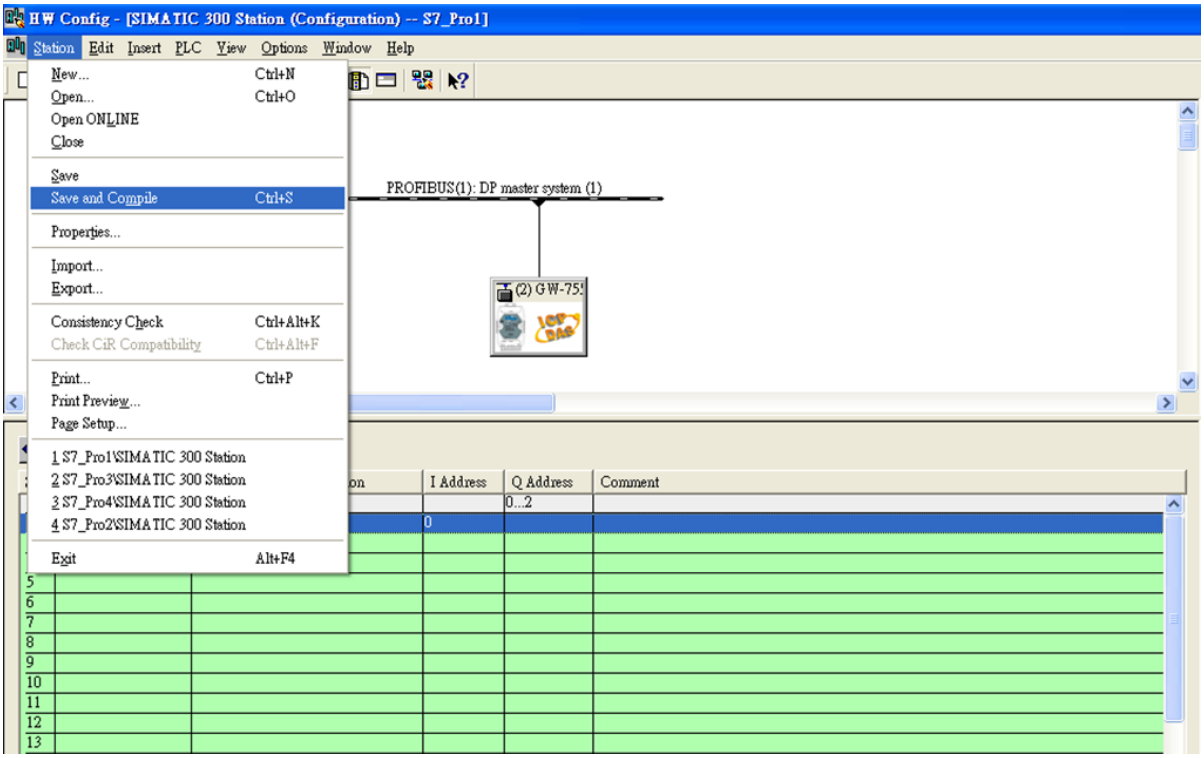
Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0))

Module Type: Read DI, click ok.



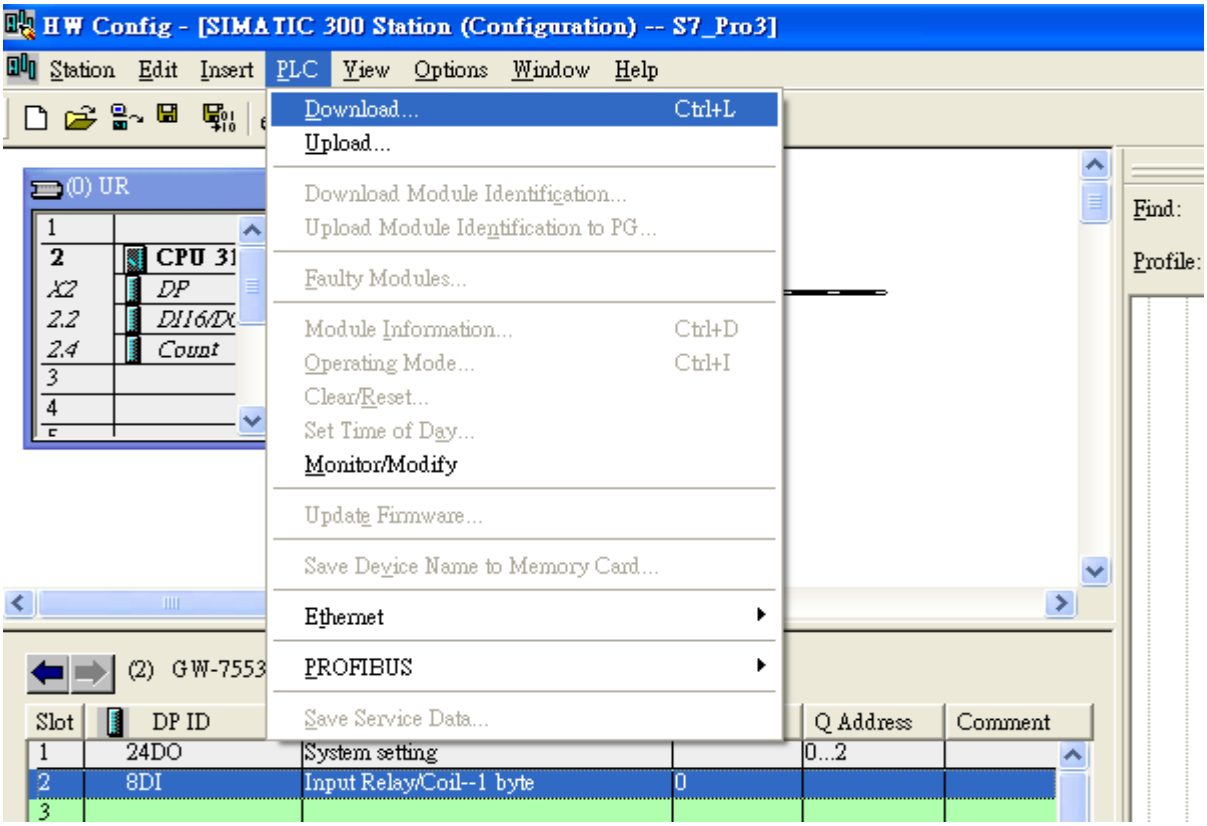
Step 3: Download the HW settings into SIMATIC PLC

1. Save and Compile

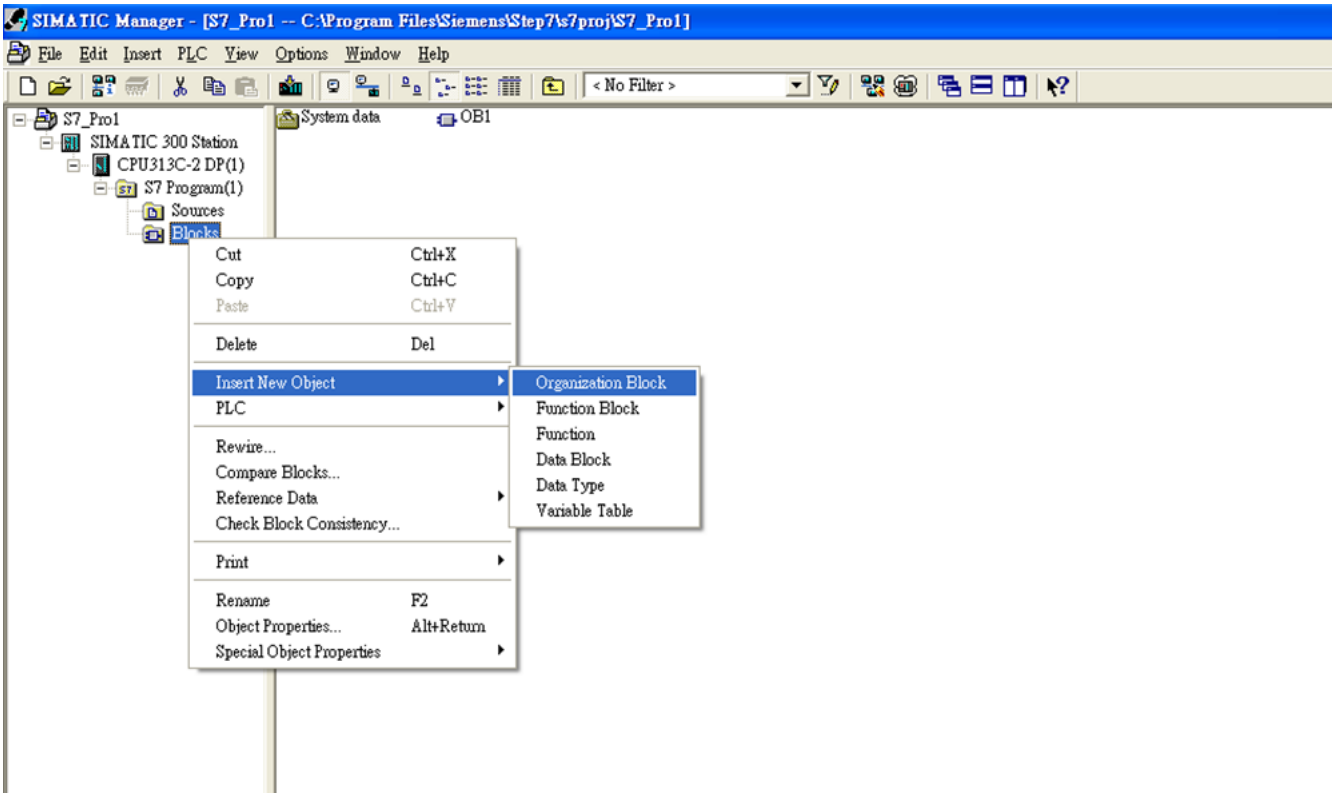


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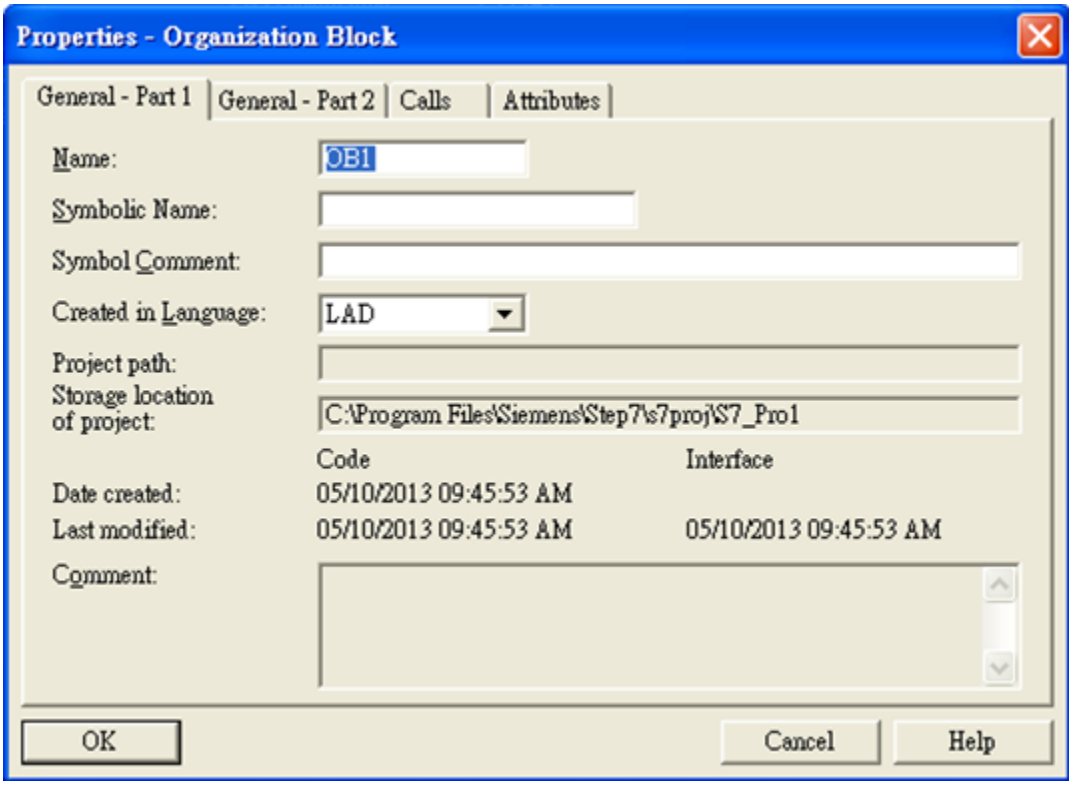
2. HW settings into SIMATIC PLC

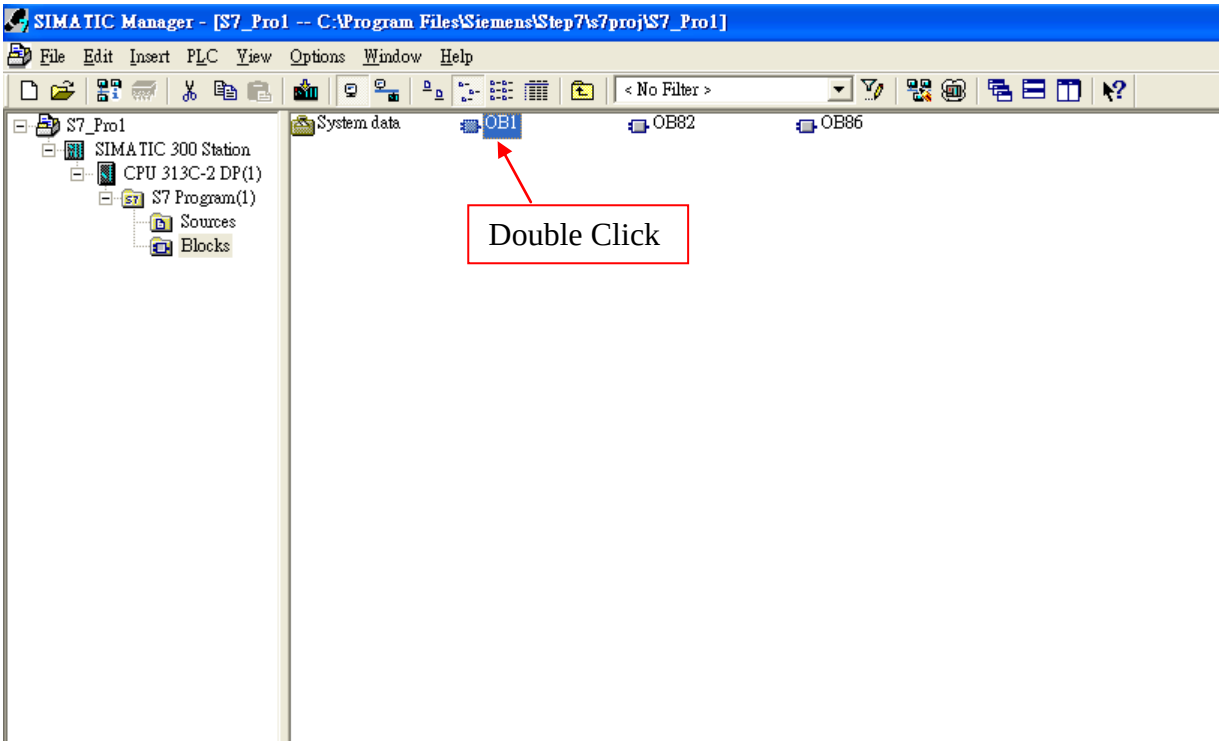


Step 4: Insert a new Organization Block (OB1,OB82,OB86)



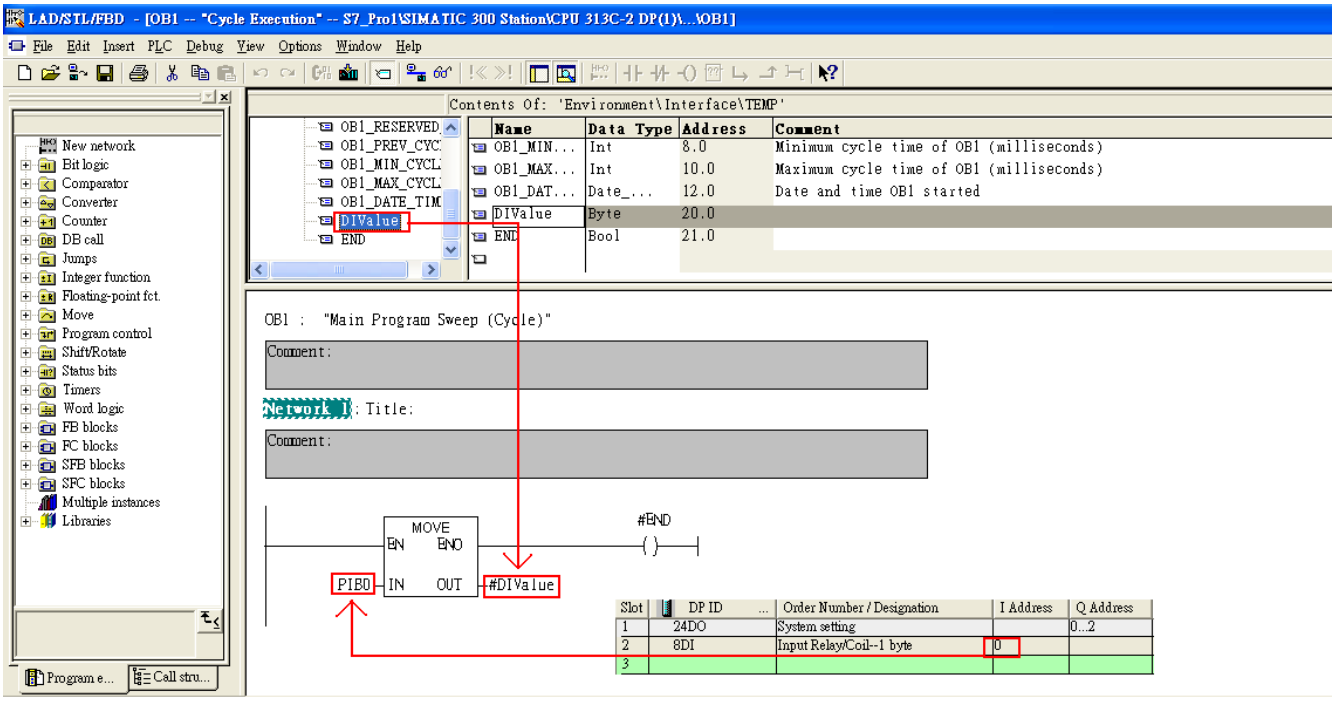
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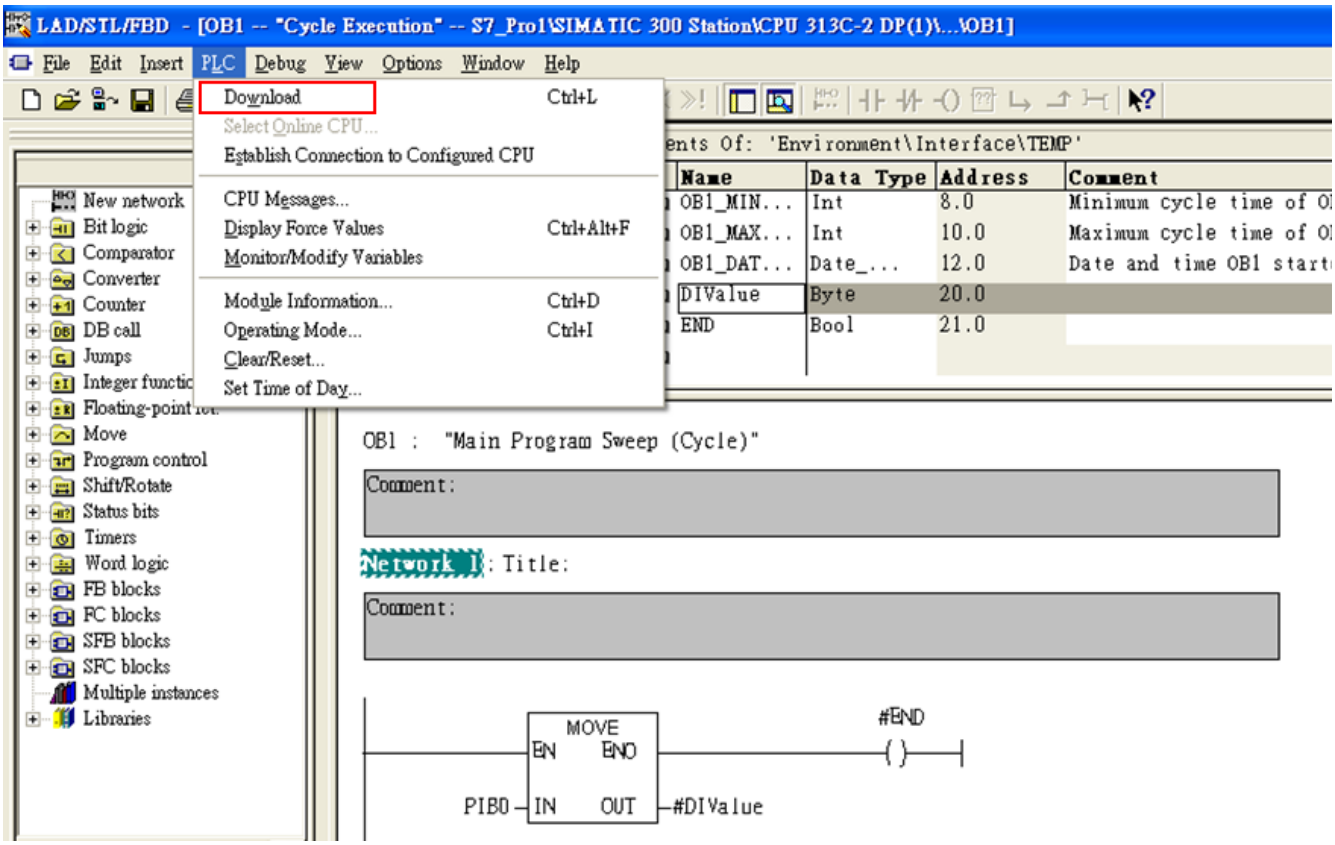


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Step 5: Edit OB1



Step 6: Download the settings into SIMATIC PLC

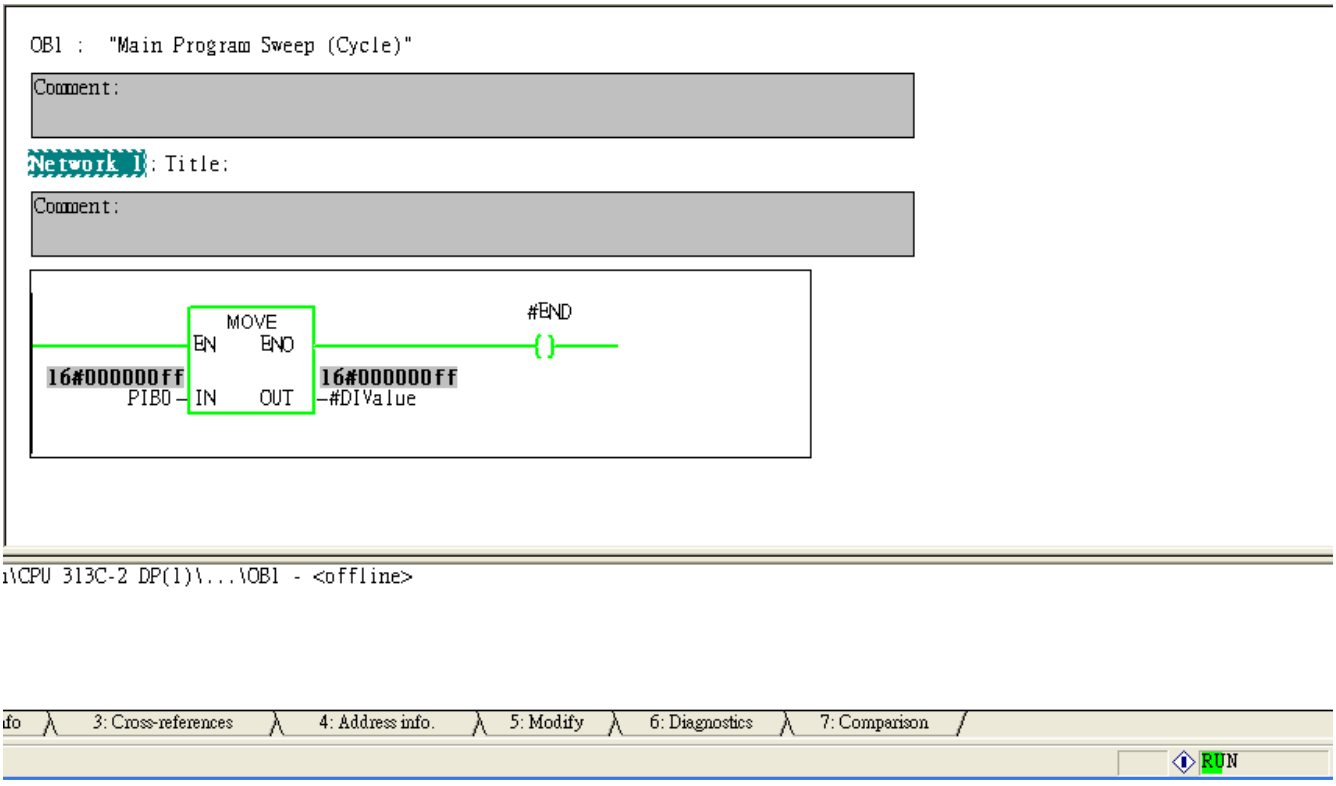


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Step 7: Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



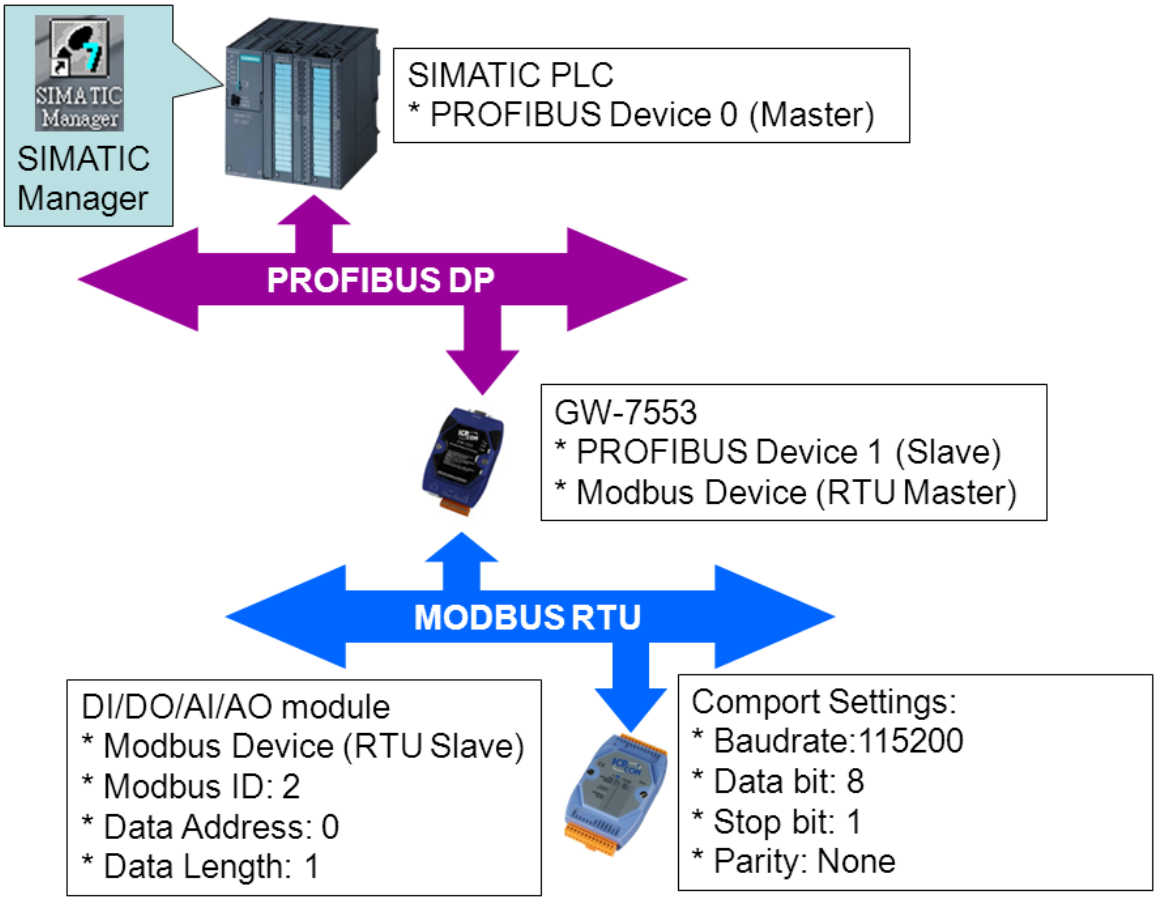
Now the setting procedure has been finished and the user can read the data of the Modbus DI module at address PIB0.



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Example 3: PLC reads AO module data from GW-7553. (Modbus FC03)

Read a Modbus RTU AO module (PROFIBUS Slave & Modbus RTU/Master)

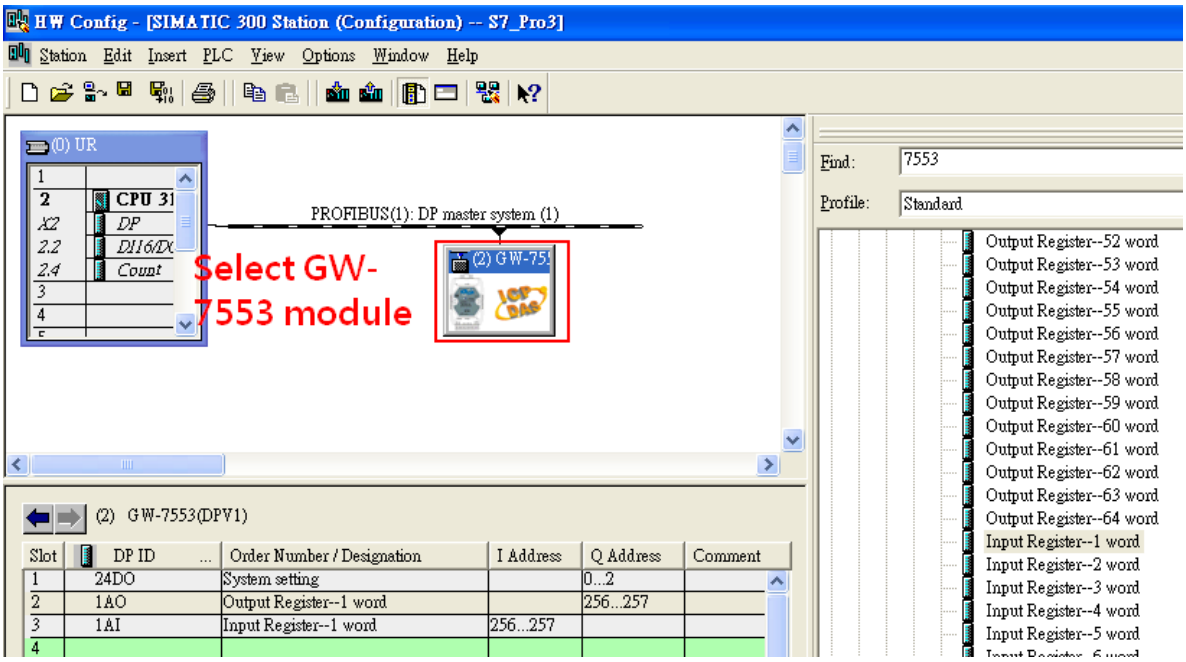


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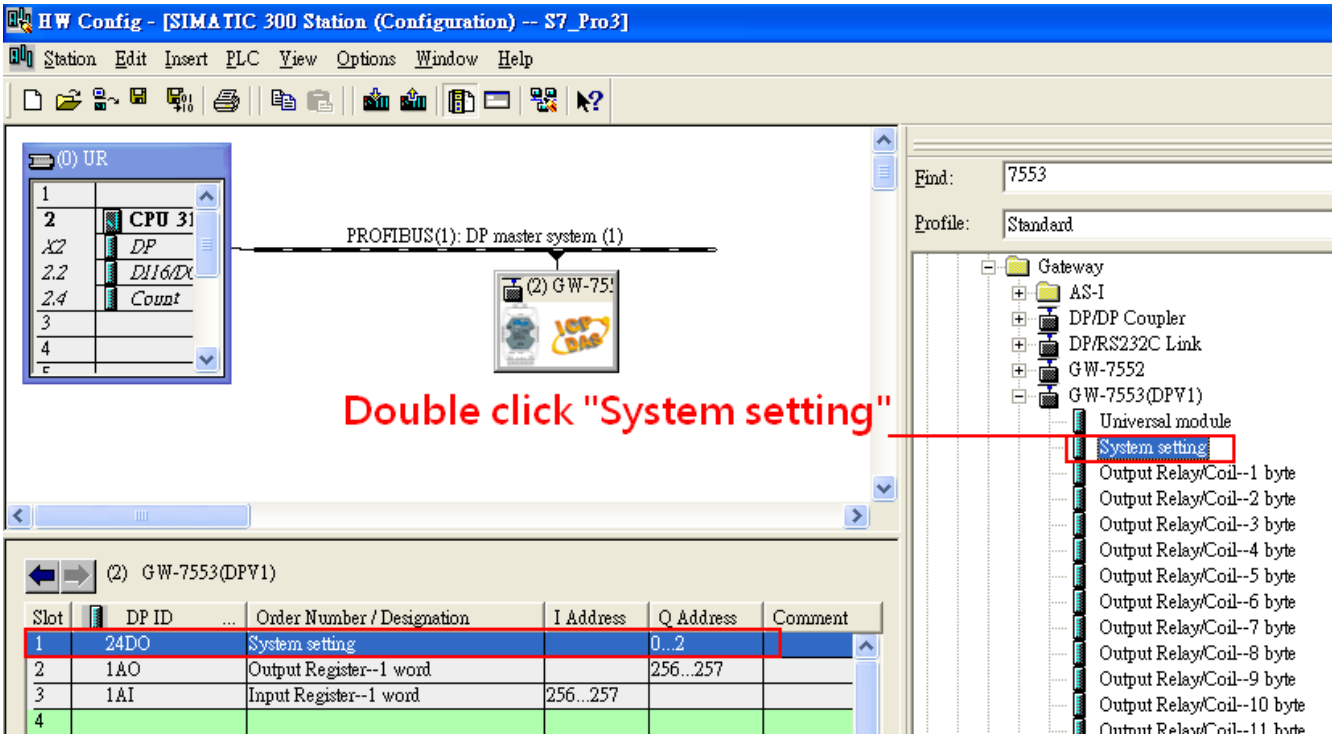
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Select GW-7553 module

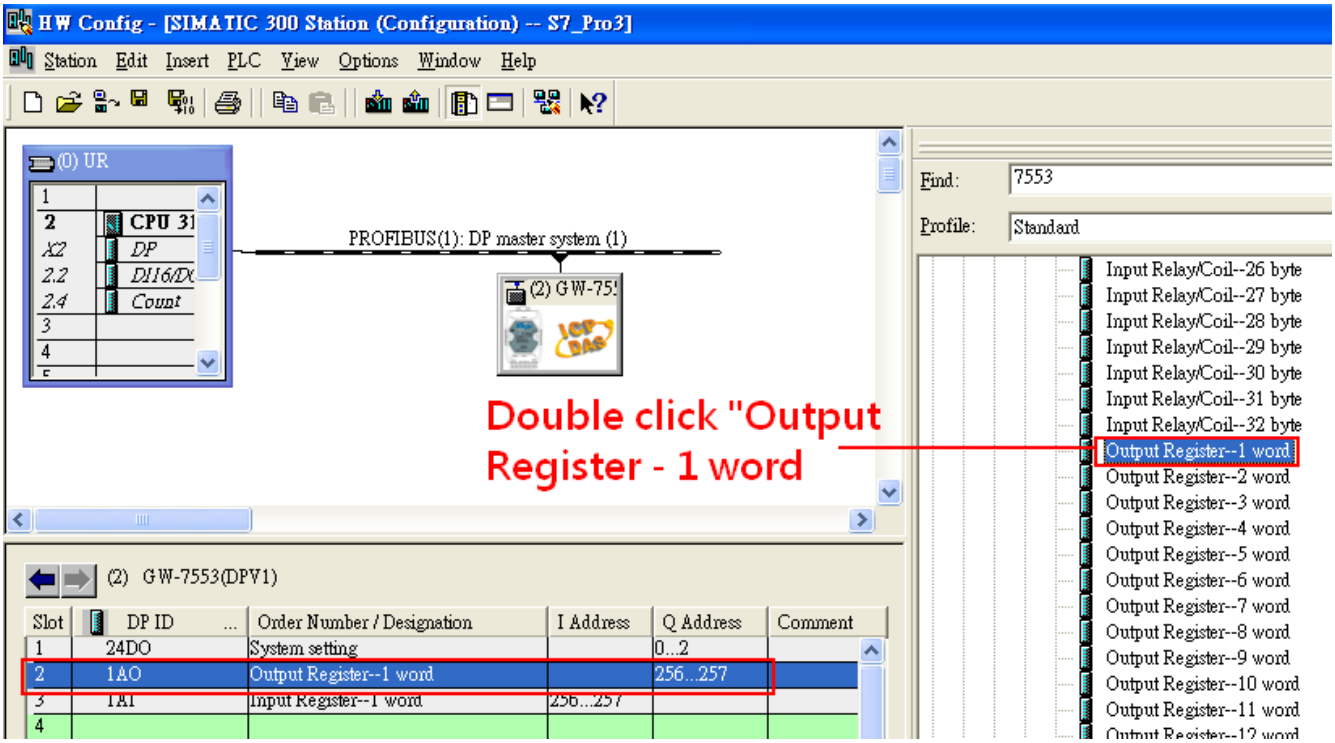


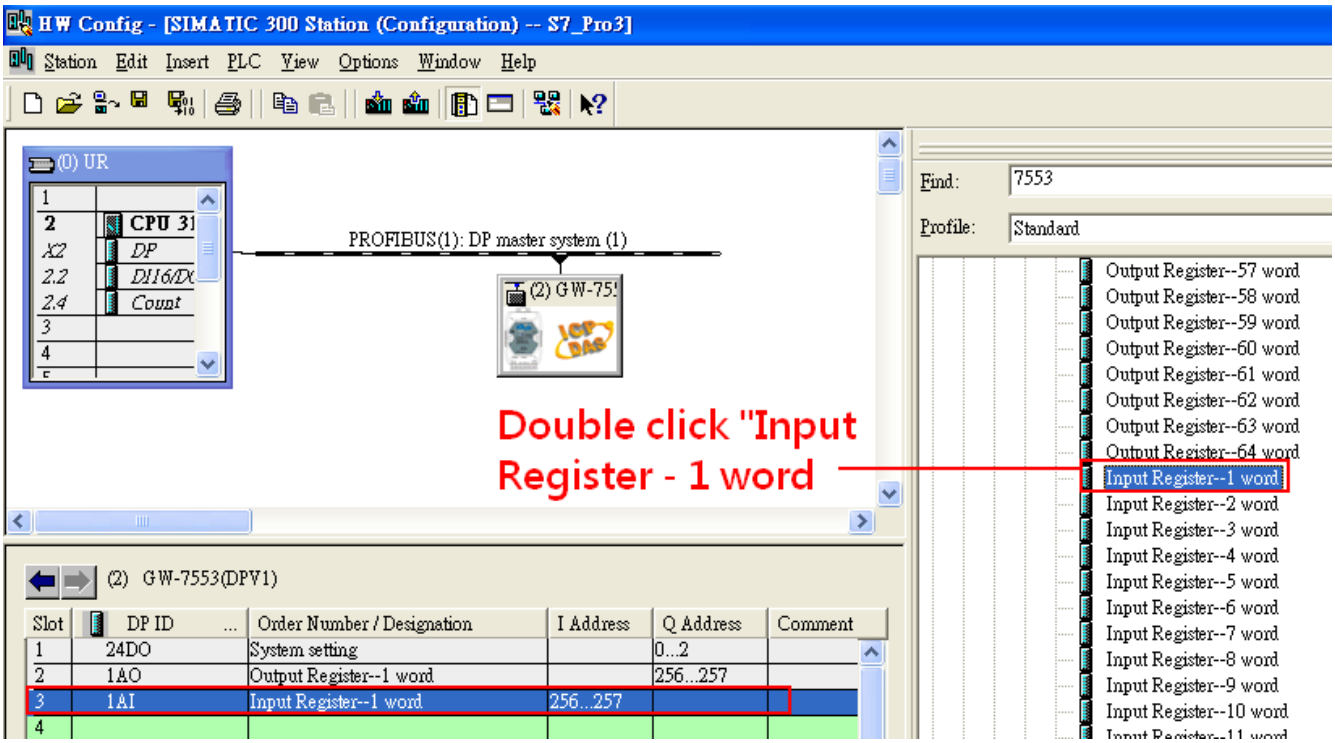
2. Add a System setting module



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3. Add “Onput Register – 1 word” and “Input Register – 1 word”



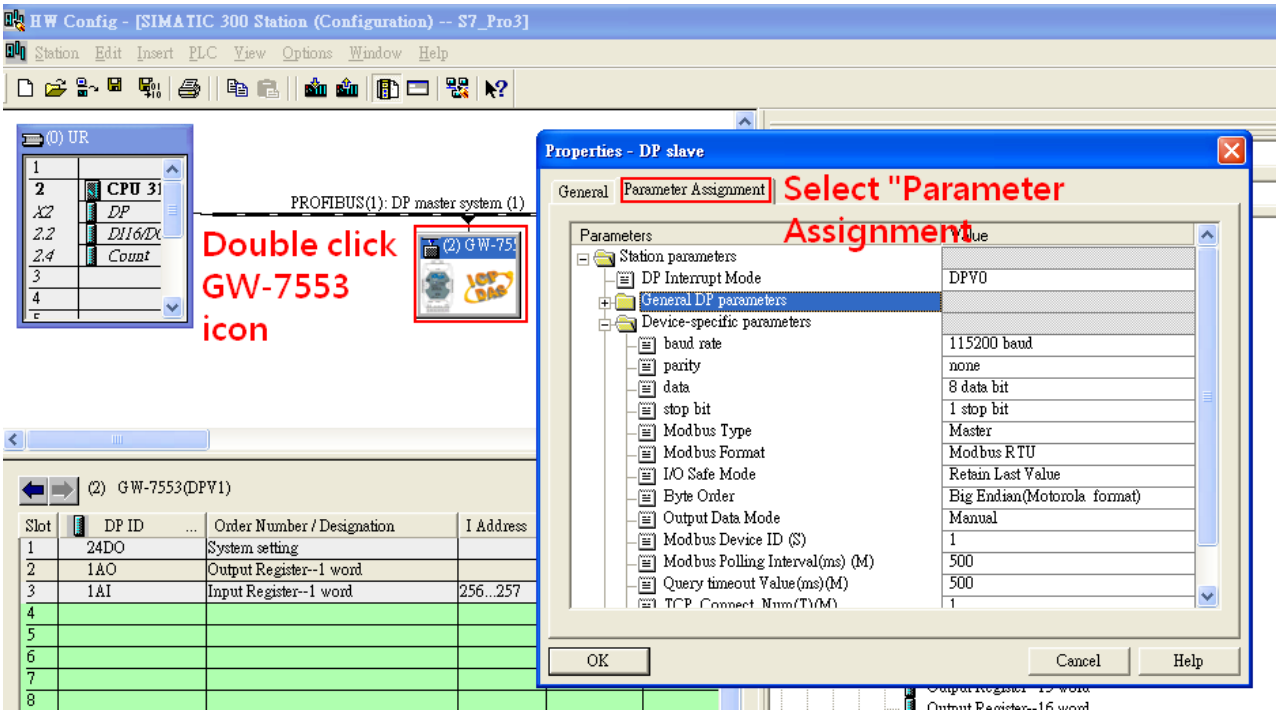


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Step 2: Setup the parameters of the GW-7553

1. Double click GW-7553 icon

2. Select “Parameter Assignment”

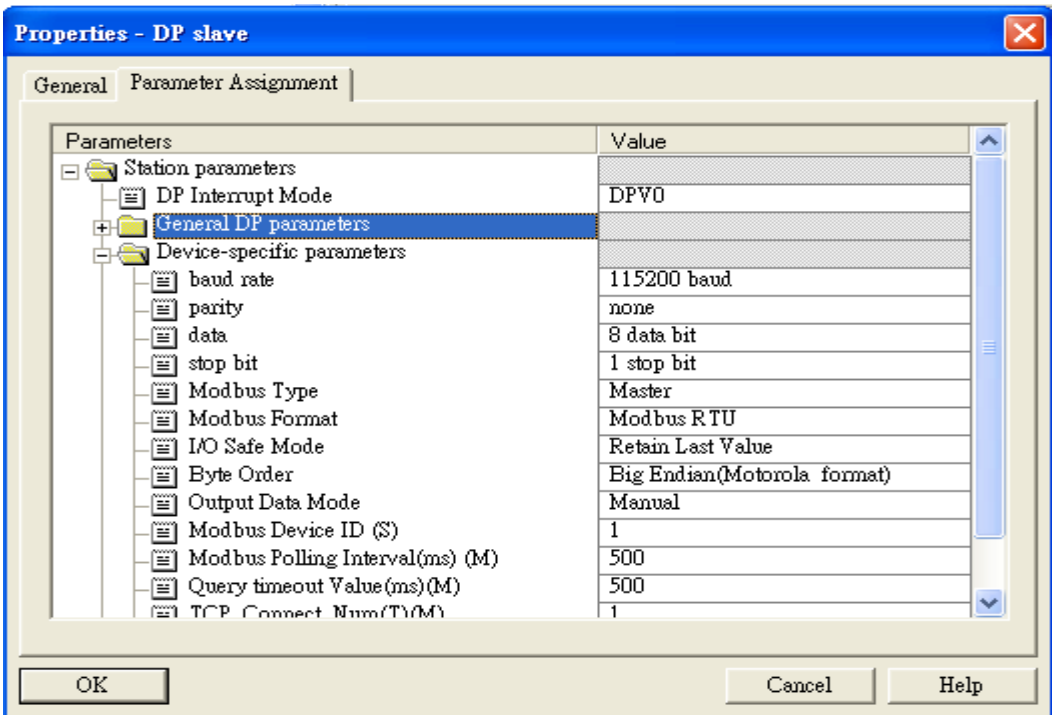


3. Set common parameters of the GW-7553

Common parameters➔

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; Modbus type: Master

Modbus Format: Modbus RTU; Byte Order: Big Endian

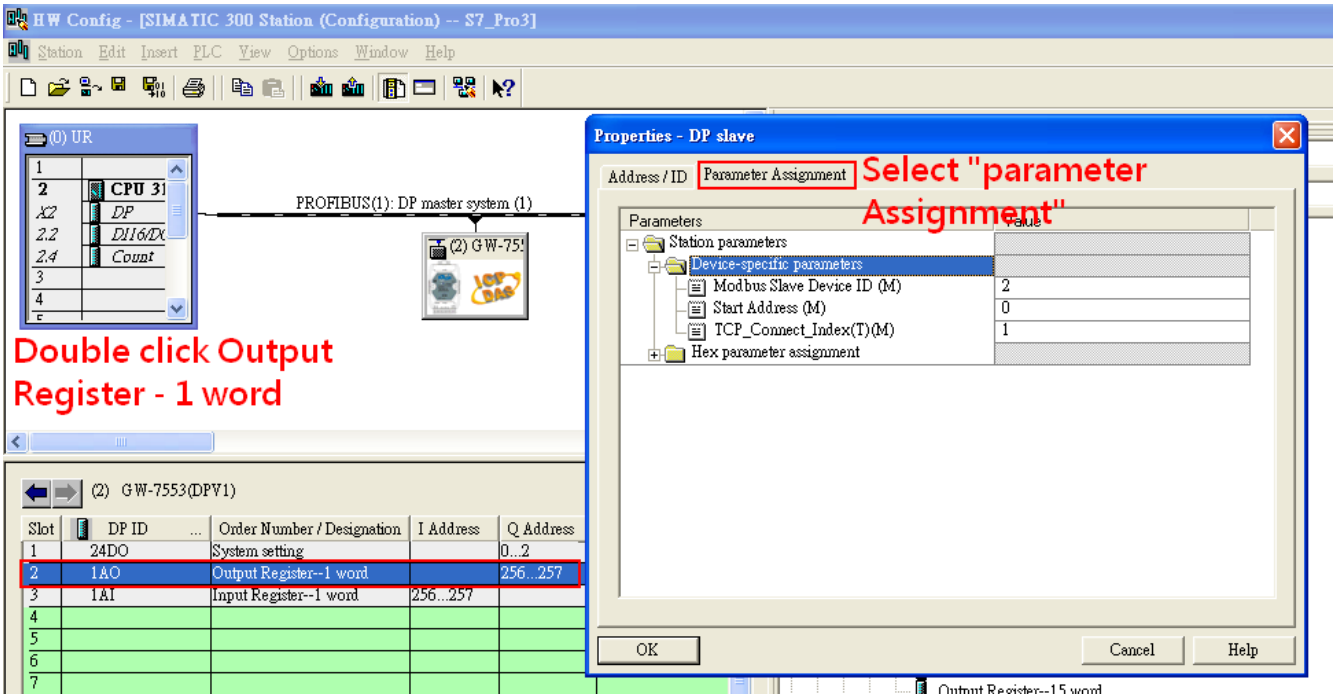


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4. Set module parameters of the GW-7553

(1)Double click “Output Register – 1 word” module

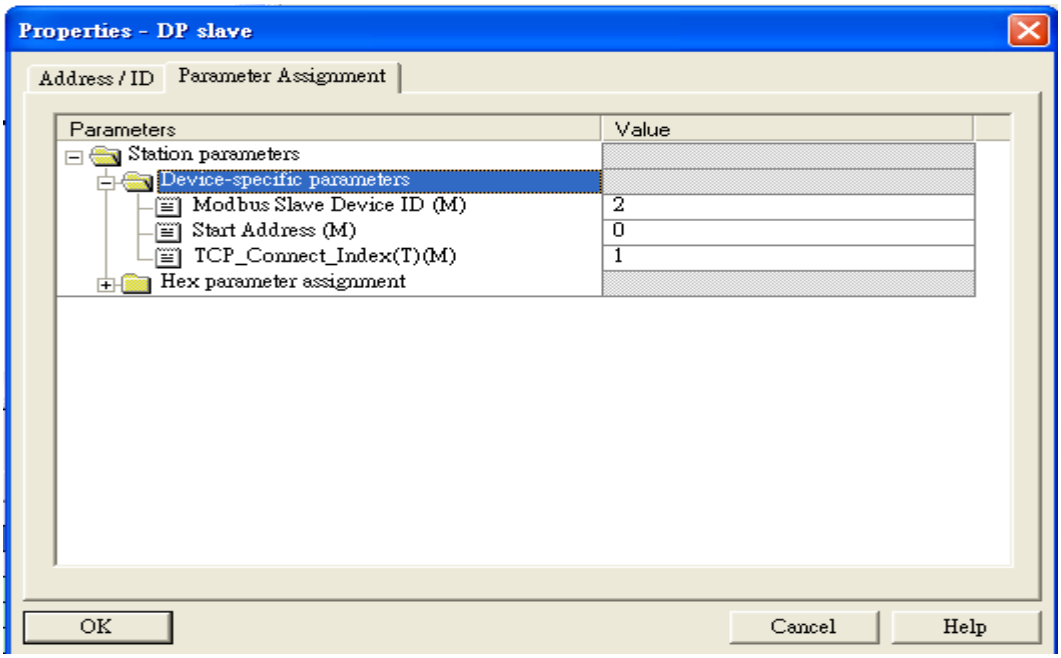
(2)Select “Parameter Assignment”



5. Setup “Output Register – 1 word” module parameters

Module parameters➔

Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0)), click ok.

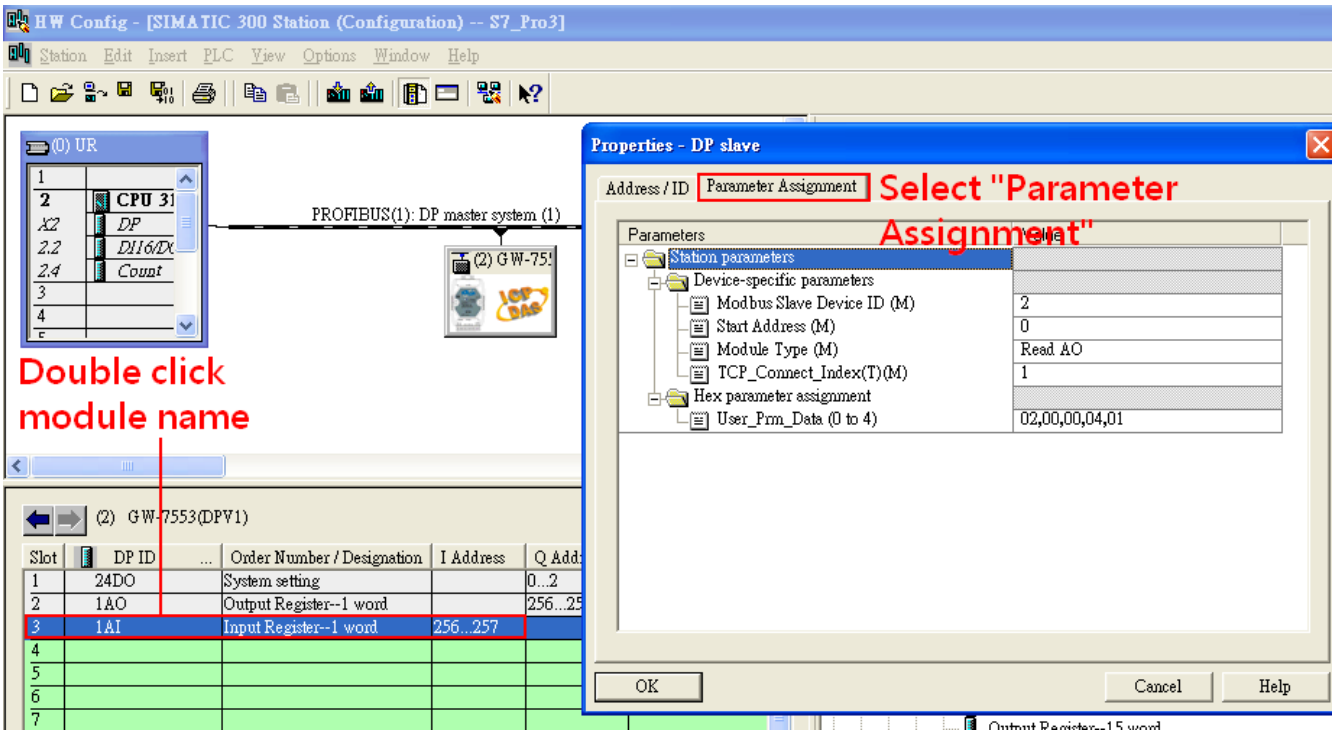


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6. Set module parameters of the GW-7553

(1)Double click “Intput Register – 1 word” module

(2)Select “Parameter Assignment”

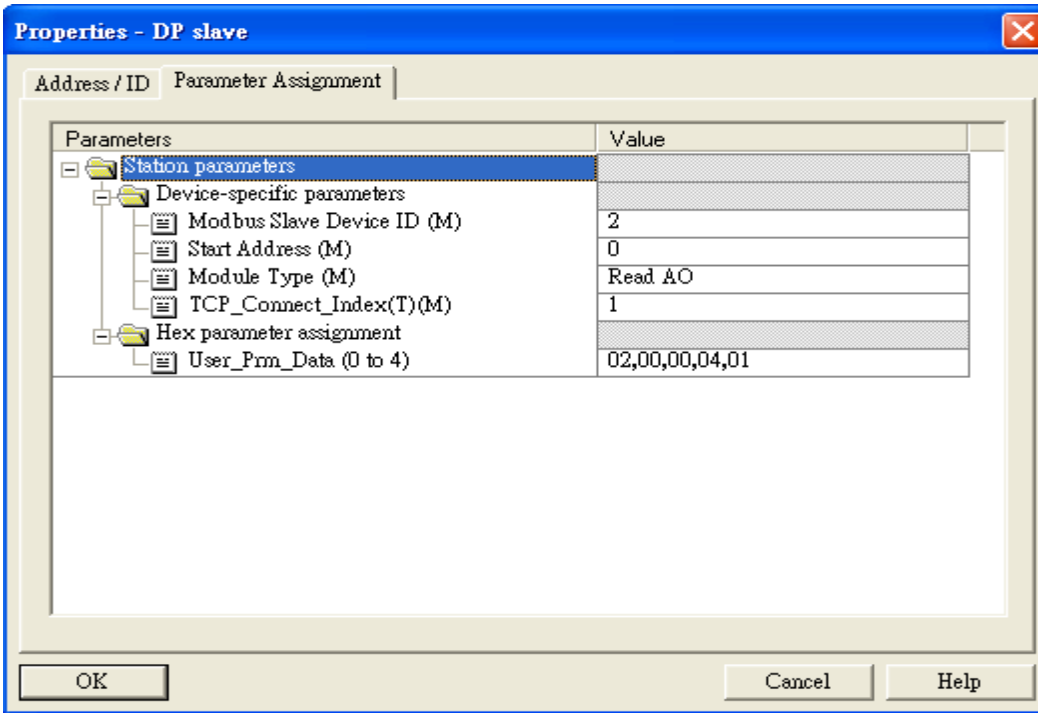


5. Setup “Input Register – 1 word” module parameters

Module parameters➔

Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0)), click ok.

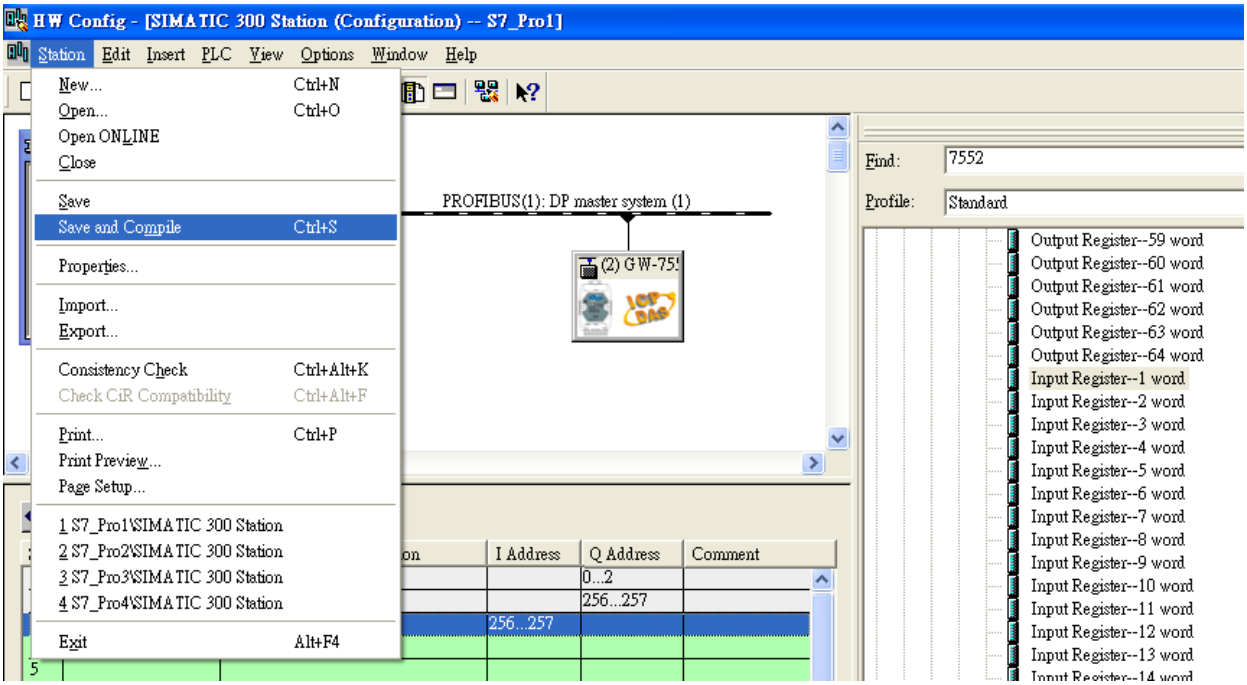
Module Type: Read AO, click ok.



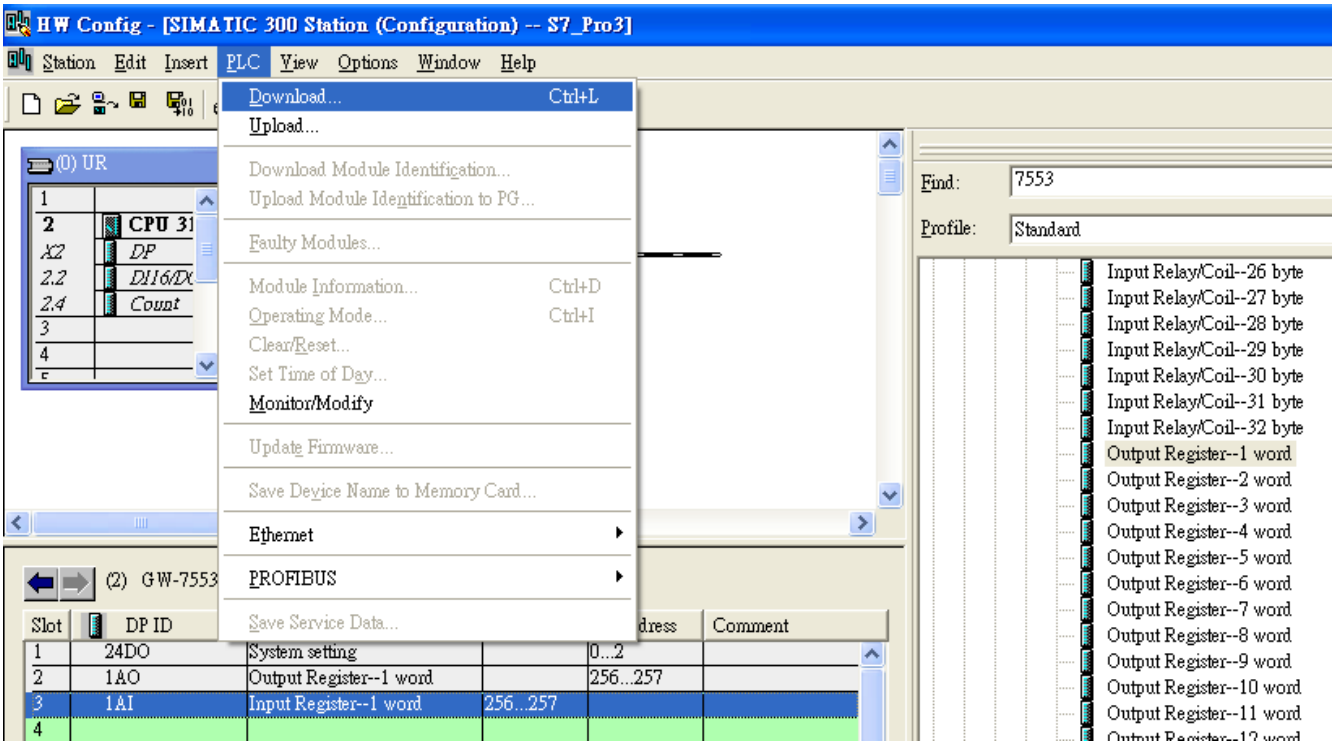
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Step 3: Download the HW settings into SIMATIC PLC

1. Save and Compile

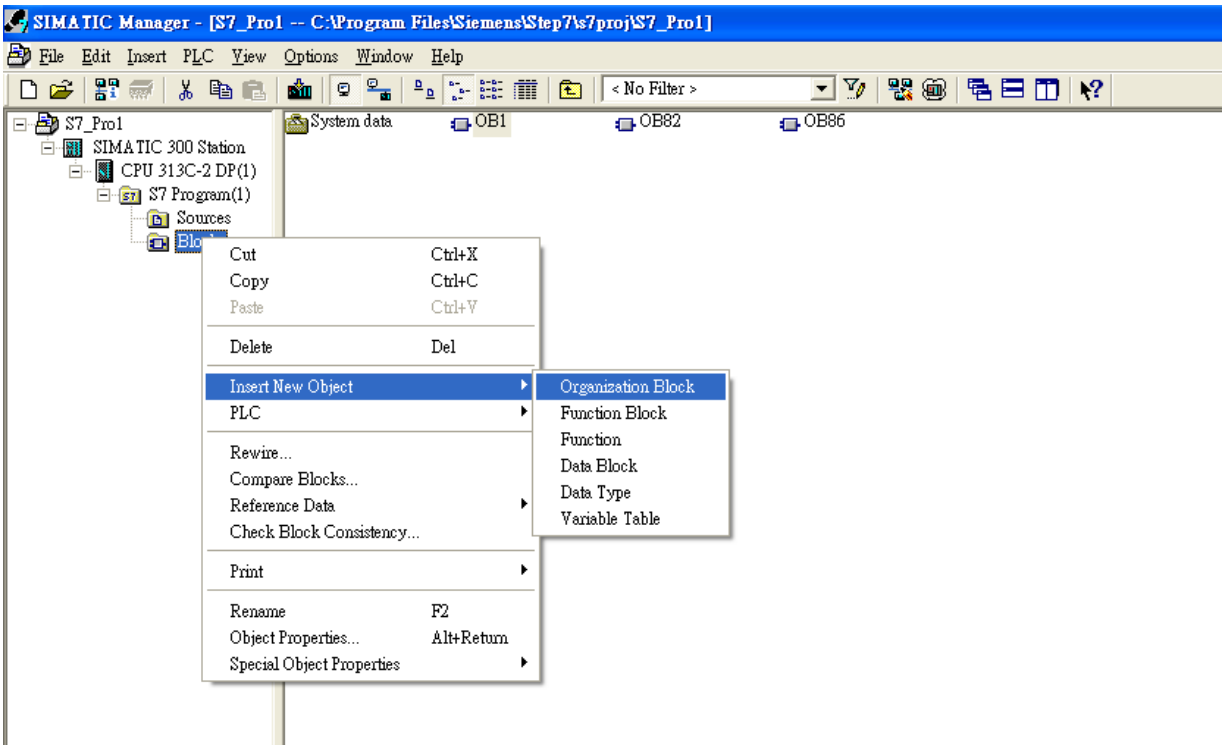


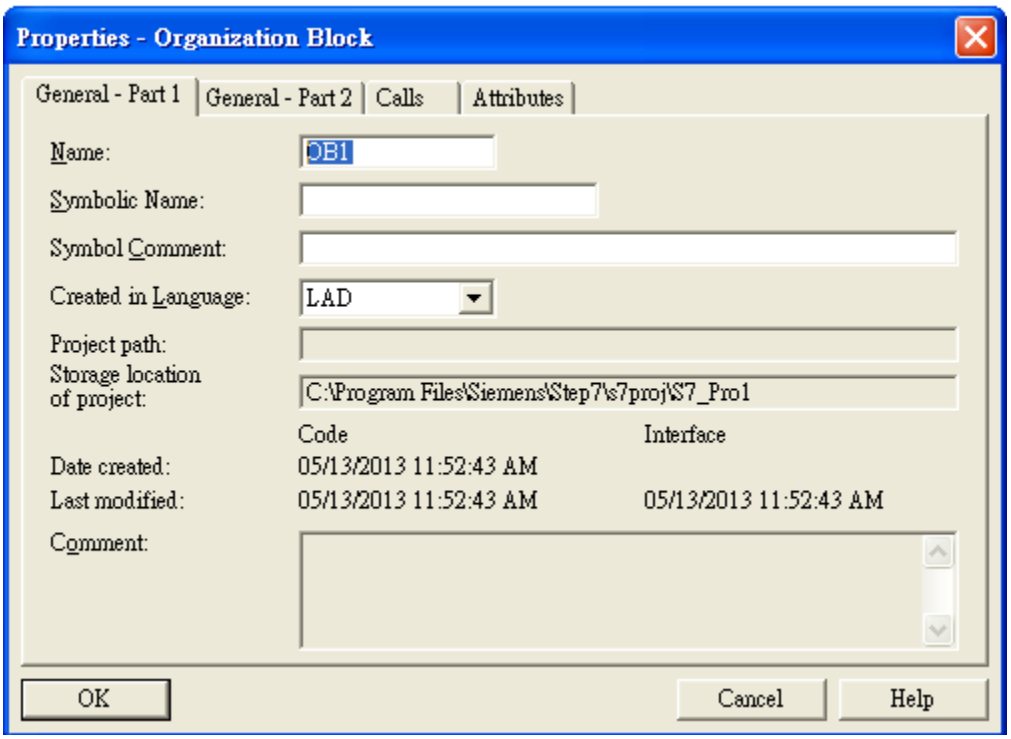
2. HW settings into SIMATIC PLC



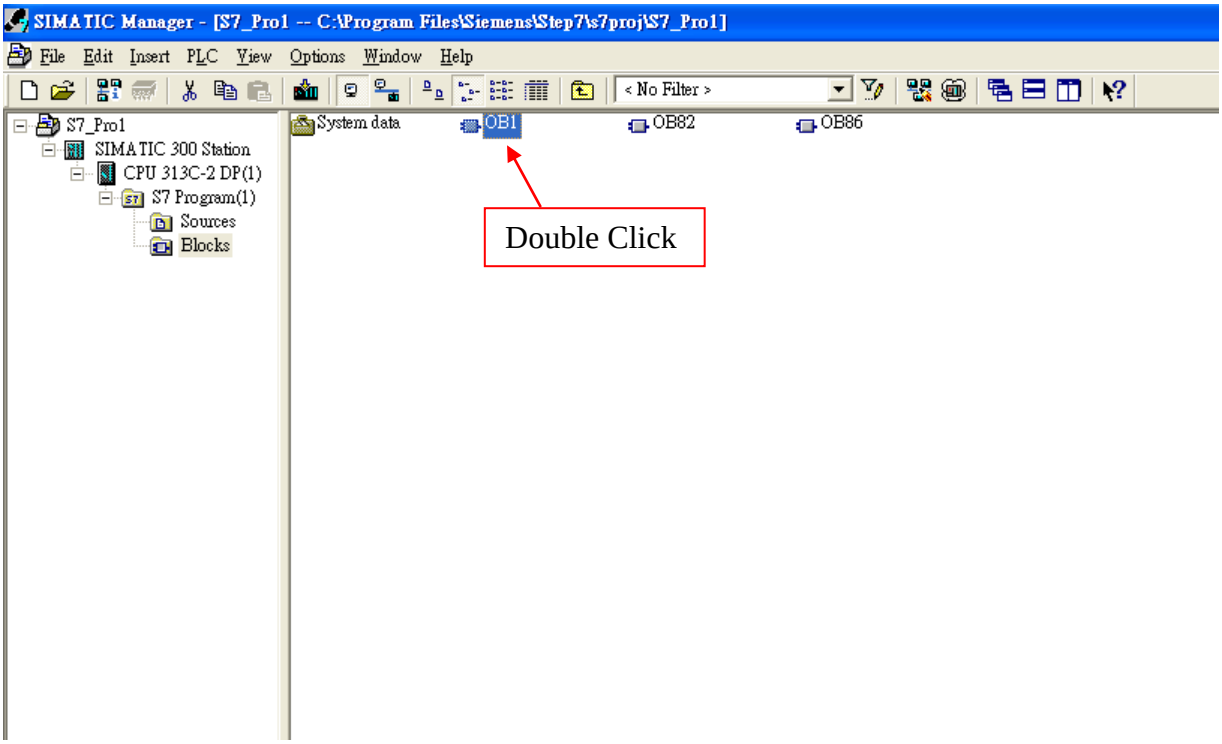
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Step 4: Insert a new Organization Block (OB1,OB82,OB86)





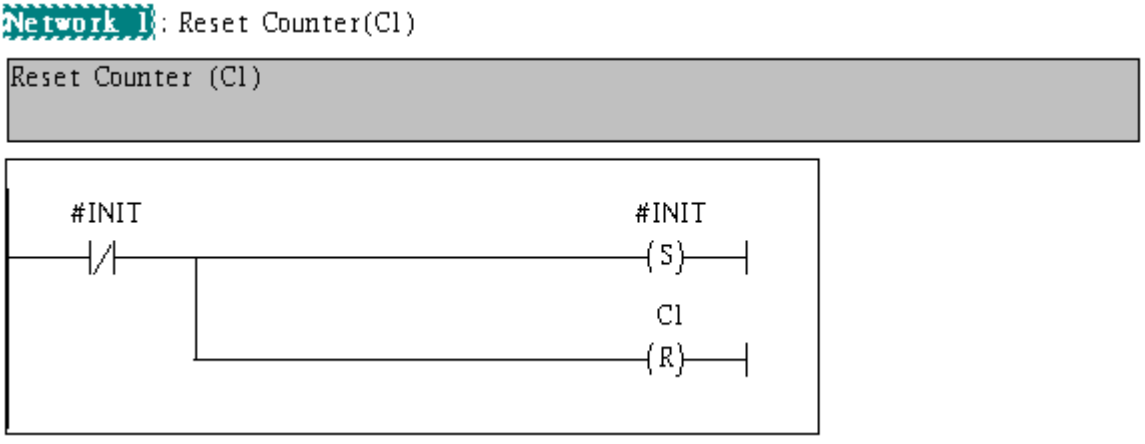
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Step 5: Edit OB1

Variables used in the example LD Program:

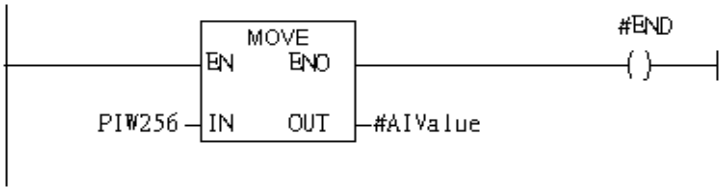
	Name	Data Type	Address	Comment
	END	Bool	20.0	
	INIT	Bool	20.1	
	Tri	Int	22.0	
	AIValue	Word	24.0	



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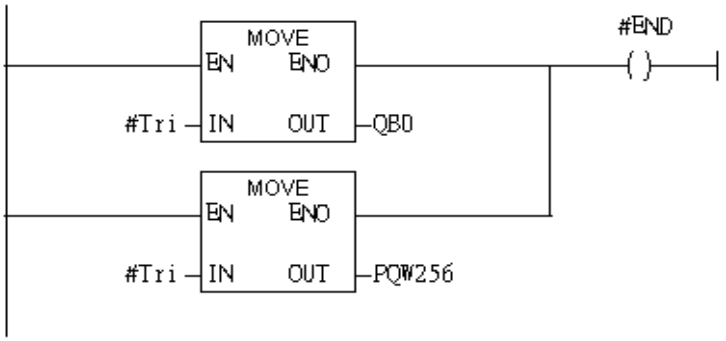
Network 2 : Title:

Comment:



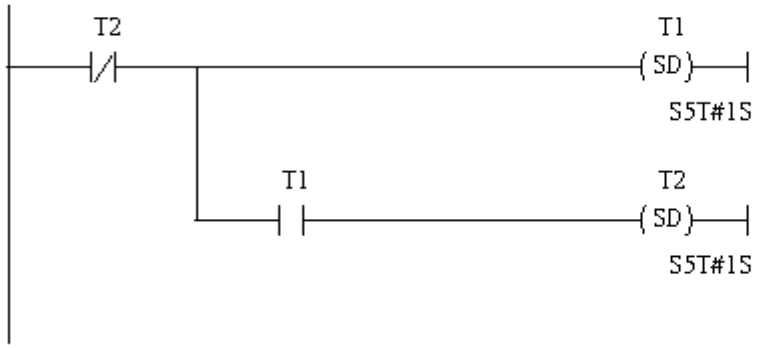
Network 3 : QB0 add "1" then PLC will send QW3 out.

1 word AO



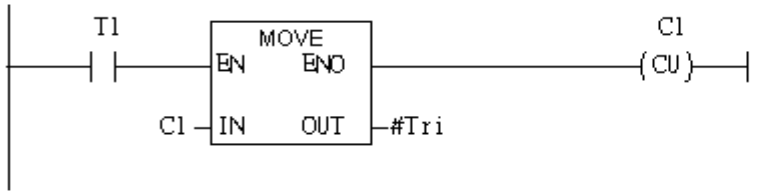
Network 4 : Timer T1 & T2

Using T2 trigger T1



Network 5 : Counter C1

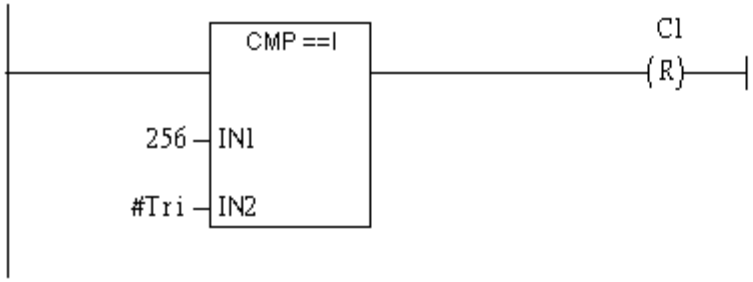
If counter(C1) add "1" and Tri will add "1" ,too.



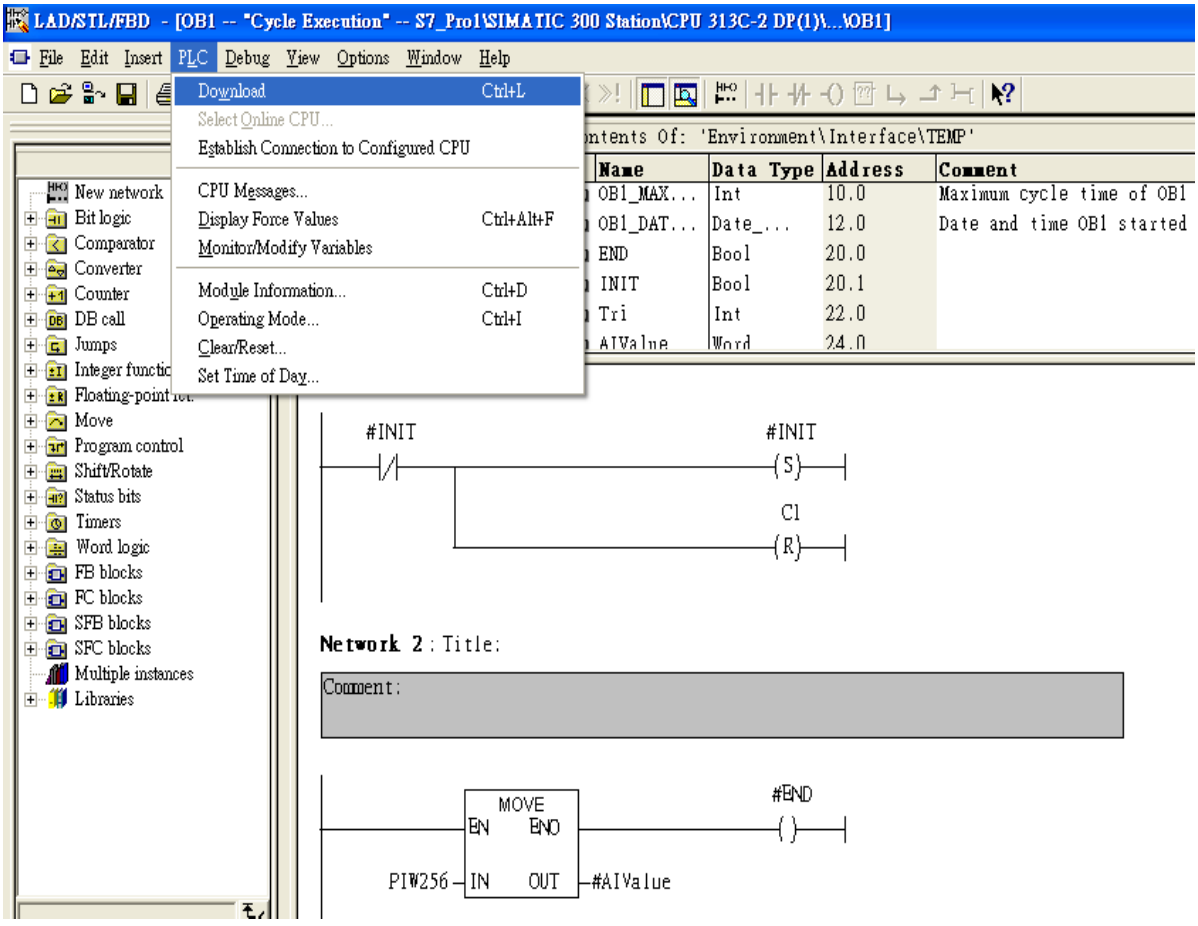
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Network 6 : Compare Tri & 256

If Tri is equal to 256,C1 will reset



Step 6: Download the settings into SIMATIC PLC

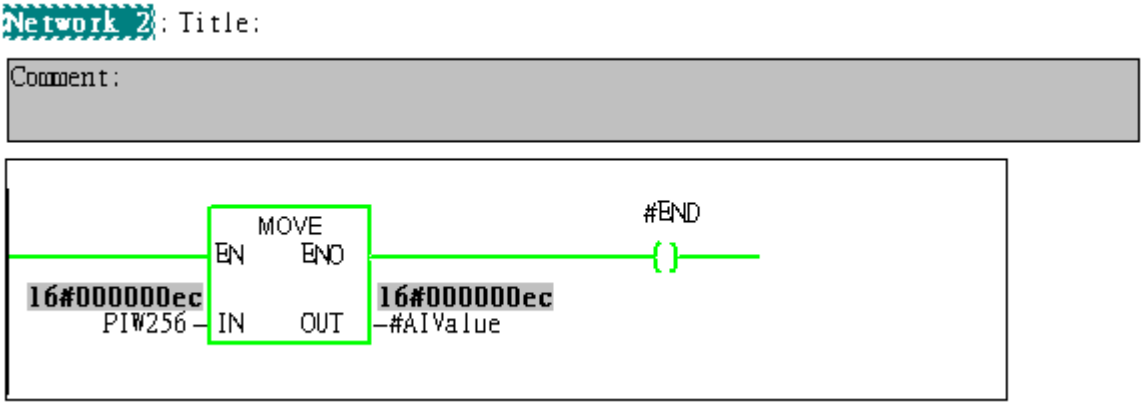


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Step 7: Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



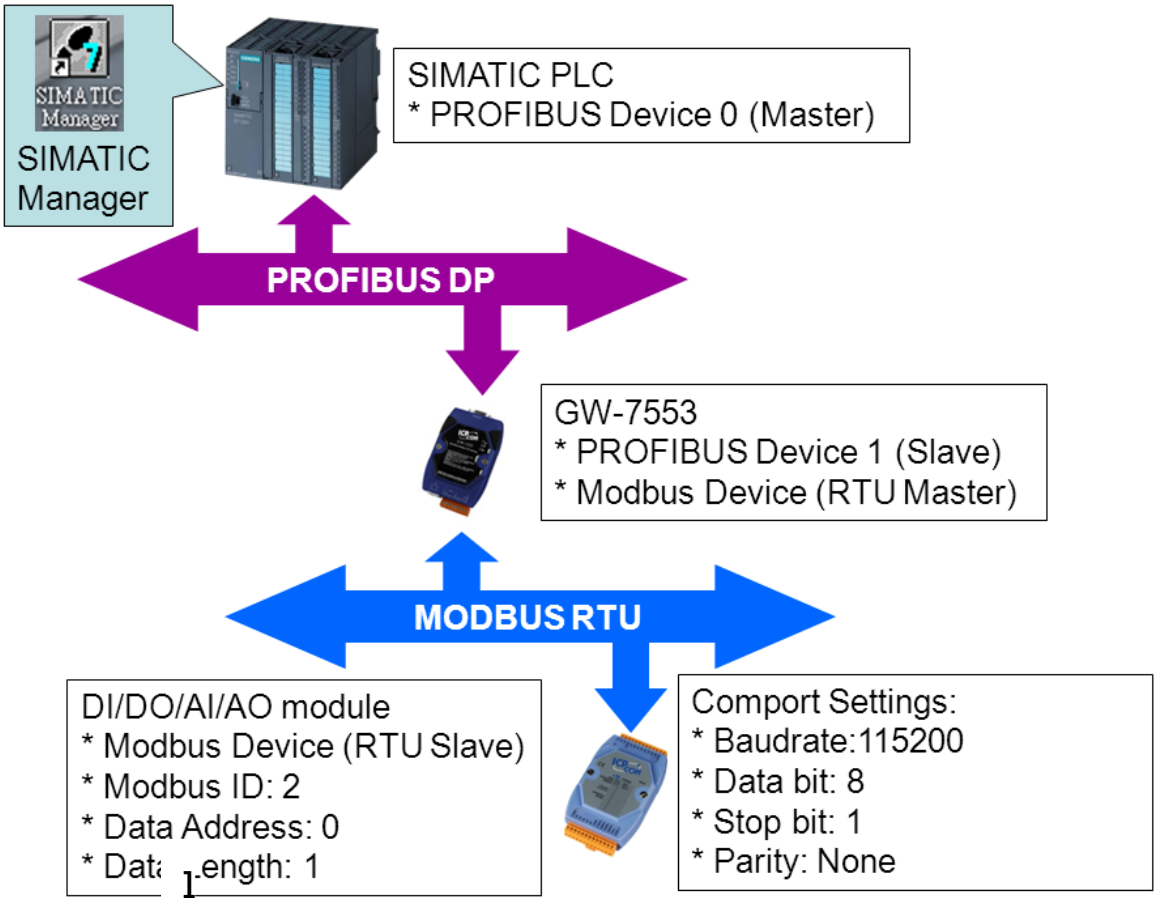
Now the setting procedure has been finished and the user can write the data to the Modbus AO module at address PIW256.



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Example 4: PLC reads AI module data from GW-7553. (Modbus FC04)

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

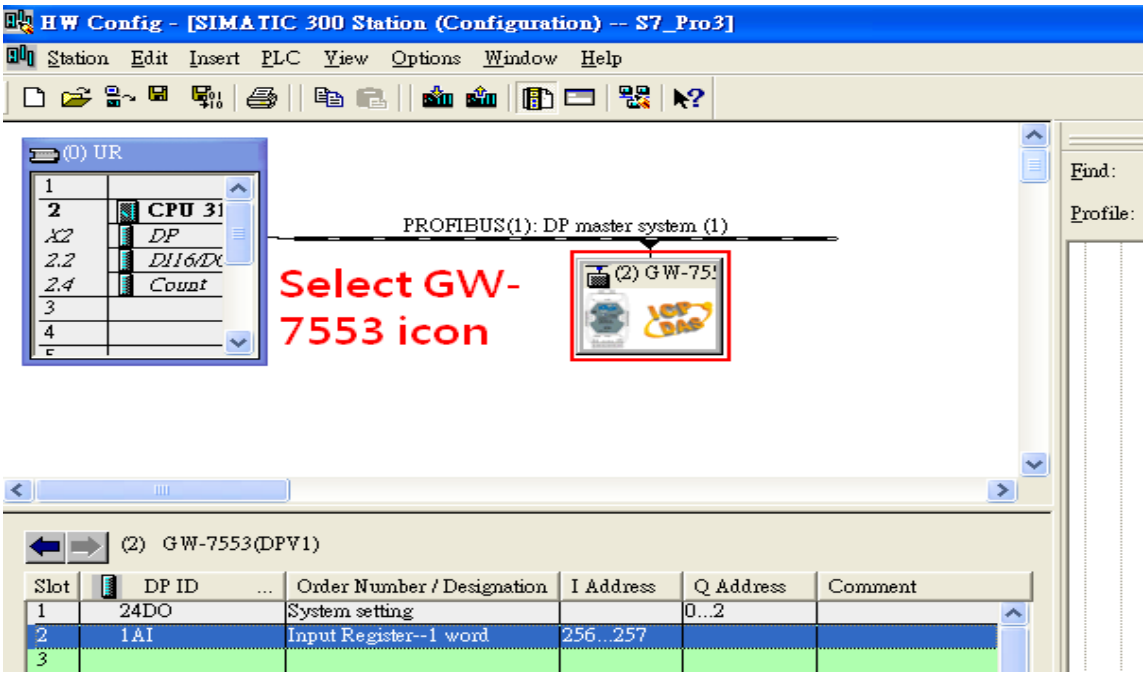


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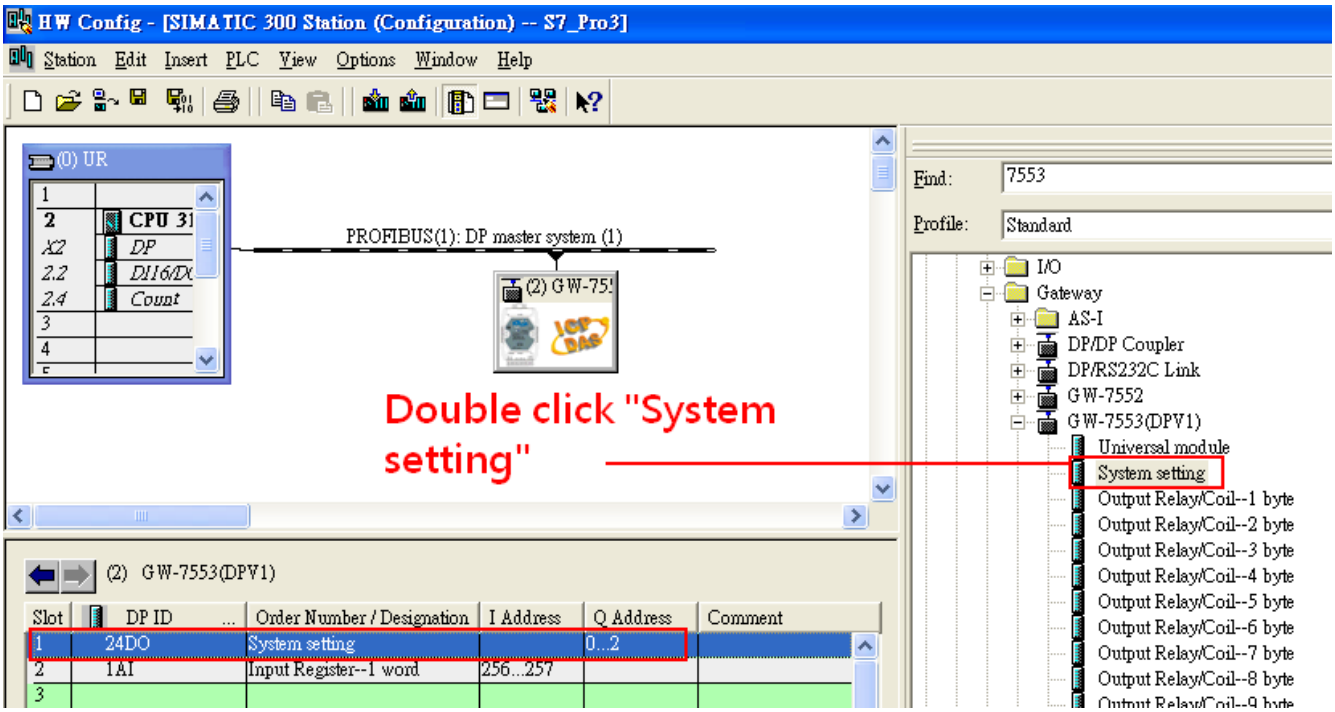
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Select GW-7553 module

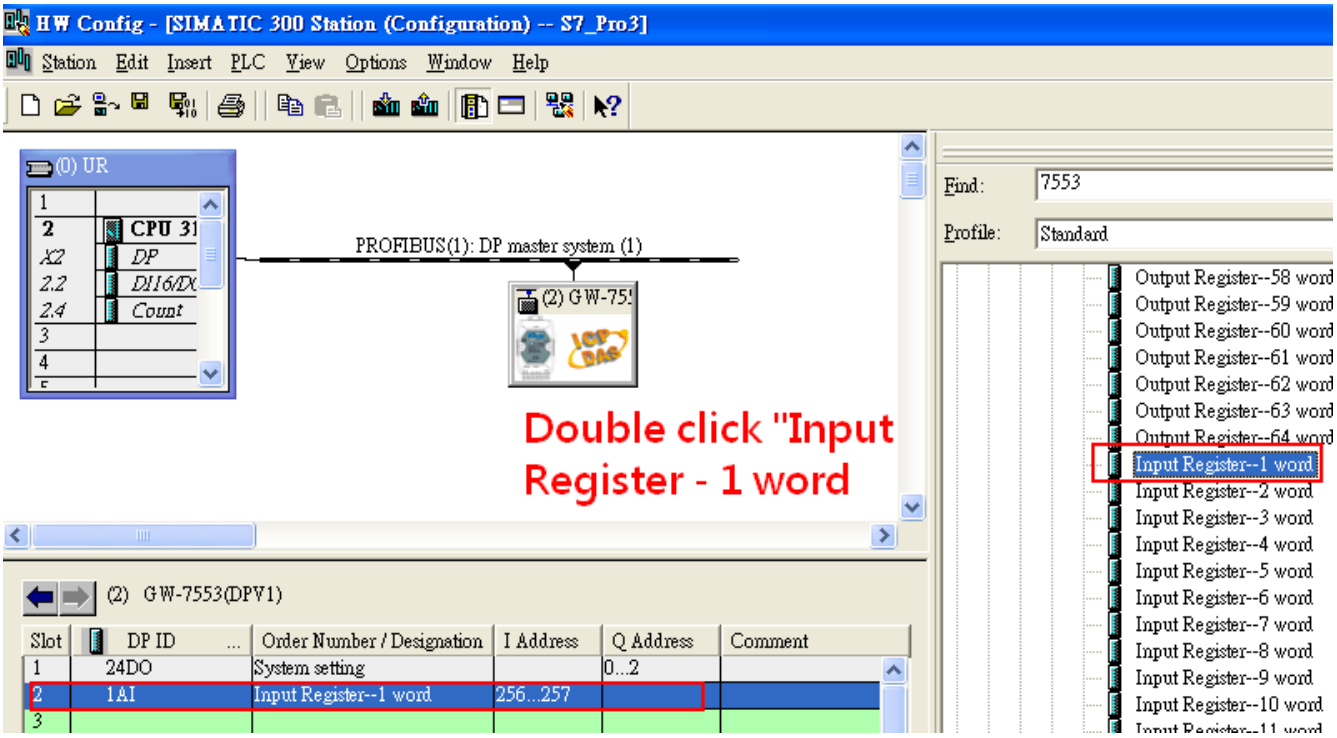


2. Add a System setting module



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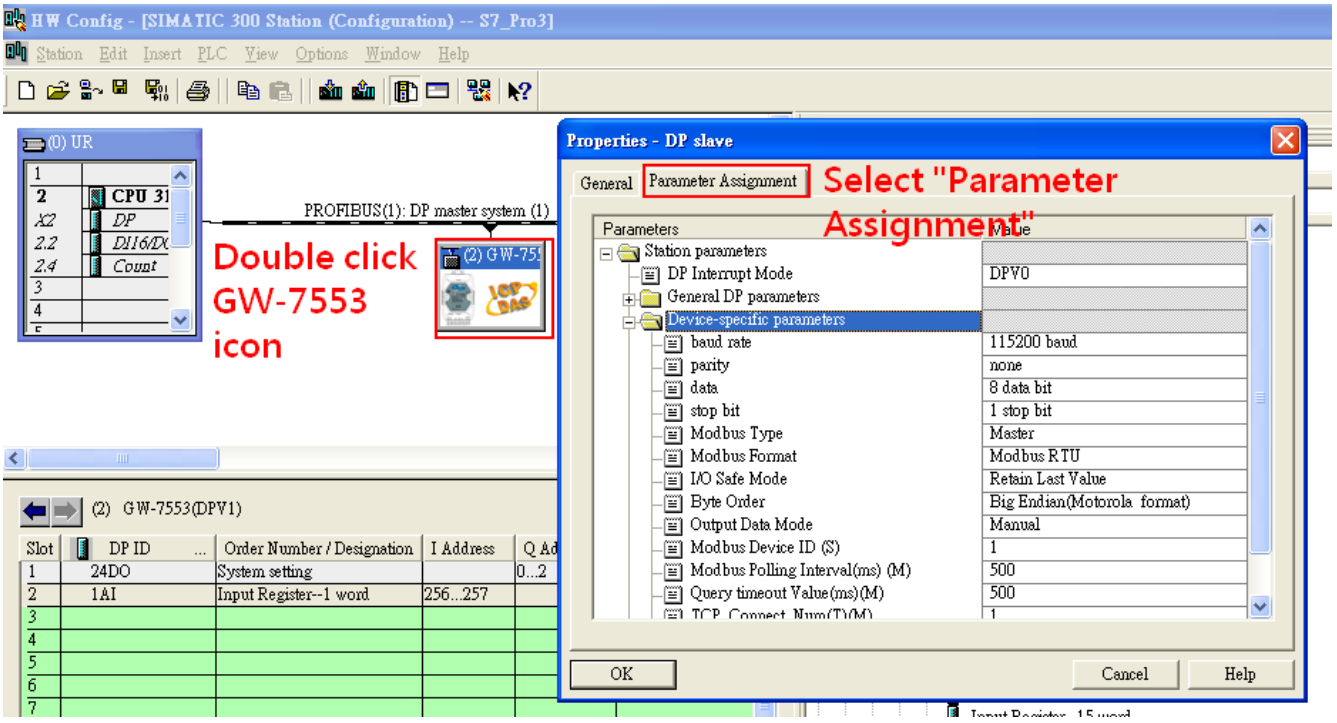
3. Add “Input Register—1 word” module



Step 2: Setup the parameters of the GW-7553

1. Double click GW-7553 icon

2. Select “Parameter Assignment”



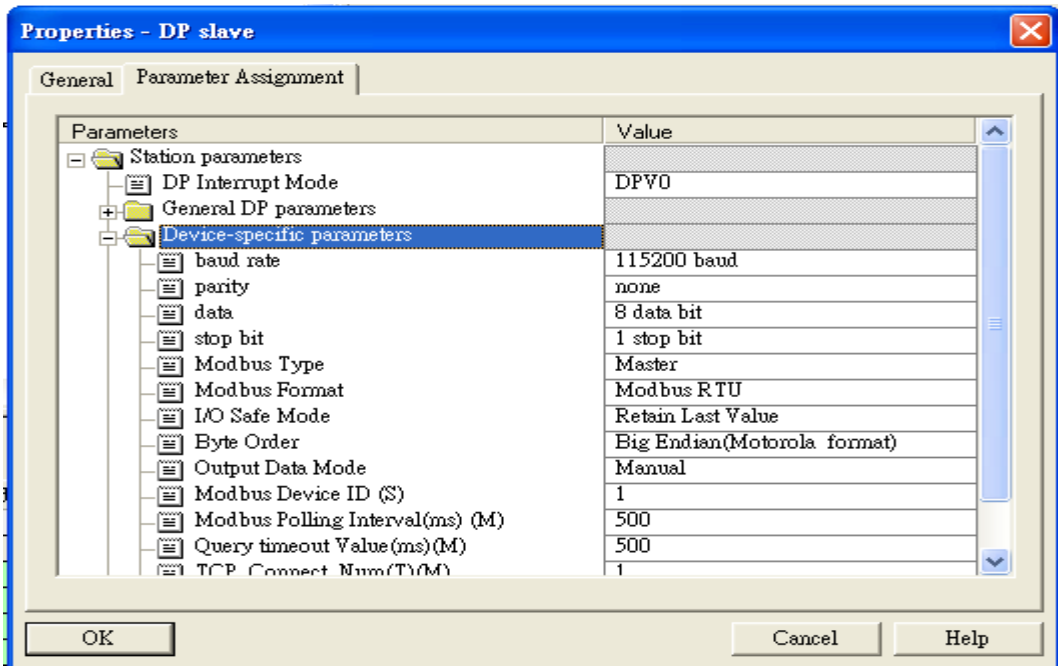
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3. Set common parameters of the GW-7553

Common parameters➔

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; Modbus type: Master

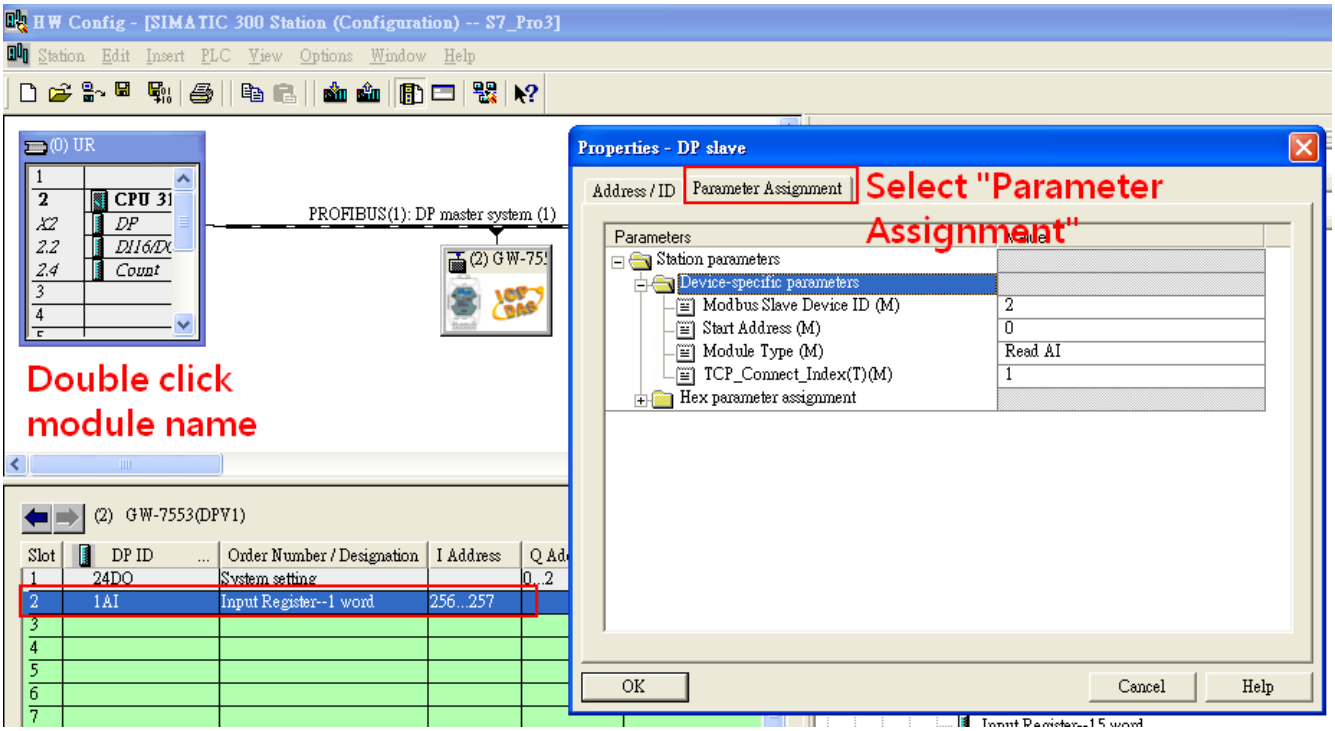
Modbus Format: Modbus RTU; Byte Order: Big Endian



4. Set module parameters of the GW-7553

(1)Double click “input register—1 word” module

(2)Select “Parameter Assignment”



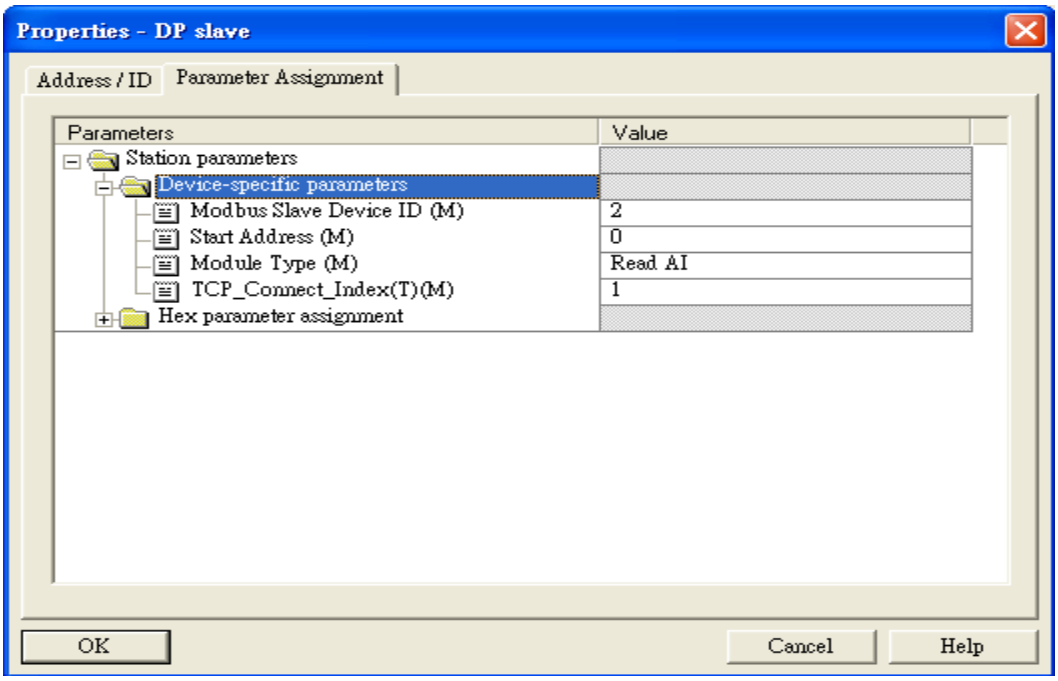
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5. Setup “input register—1 word” module parameters

Module parameters➔

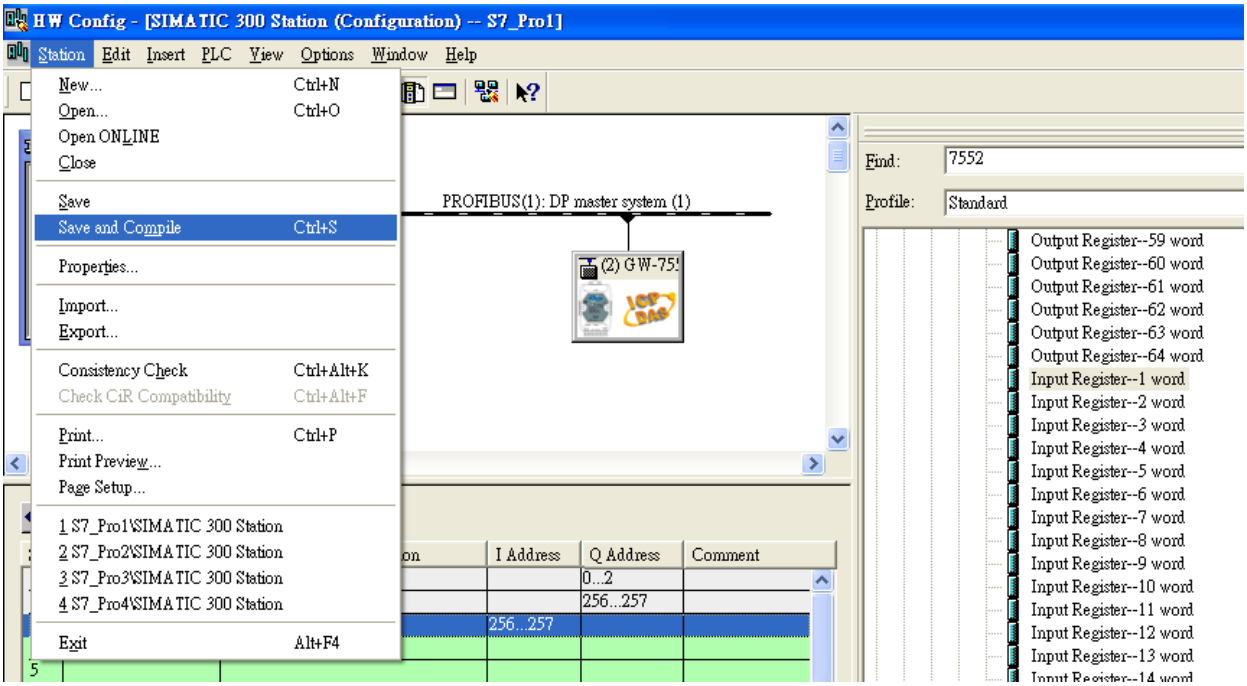
Modbus Slave Device ID: 1; Slave Address: 0 (Protocol address (base 0))

Module Type: Read AI, click ok.



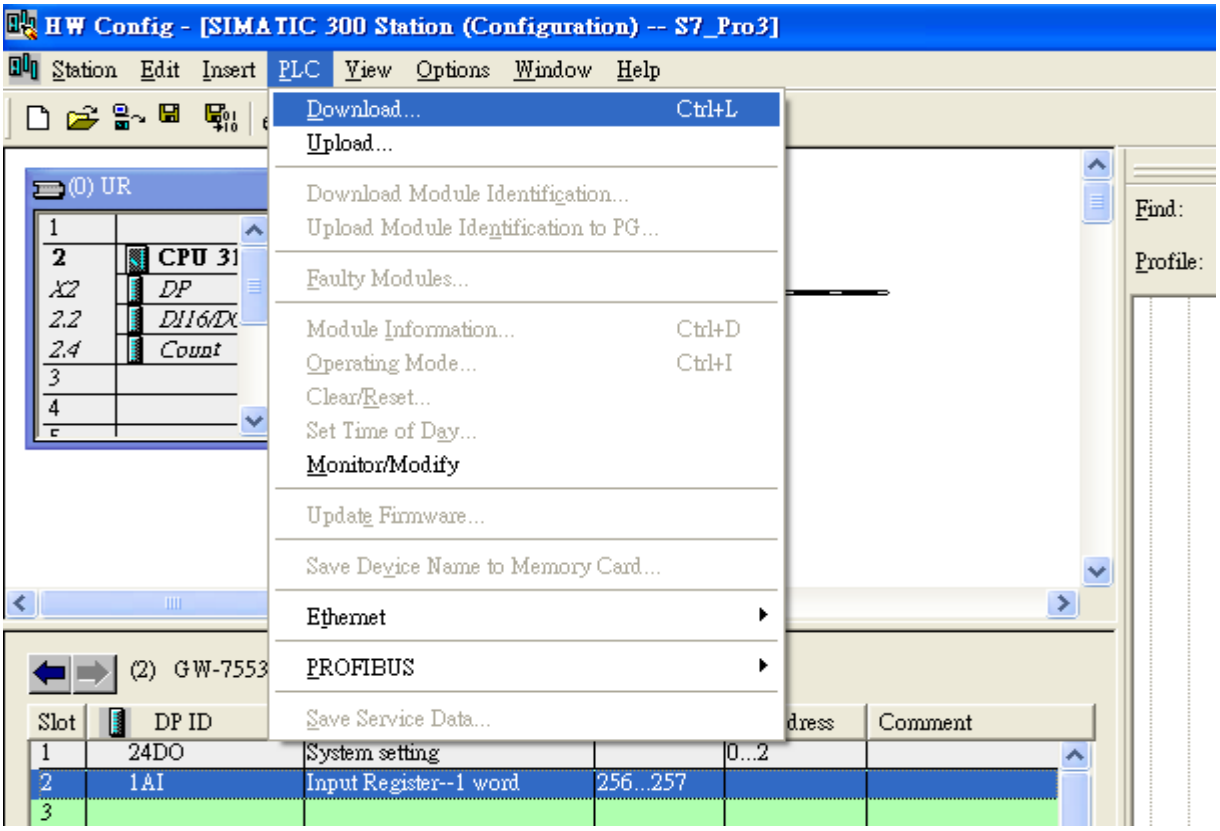
Step 3: Download the HW settings into SIMATIC PLC

1. Save and Compile

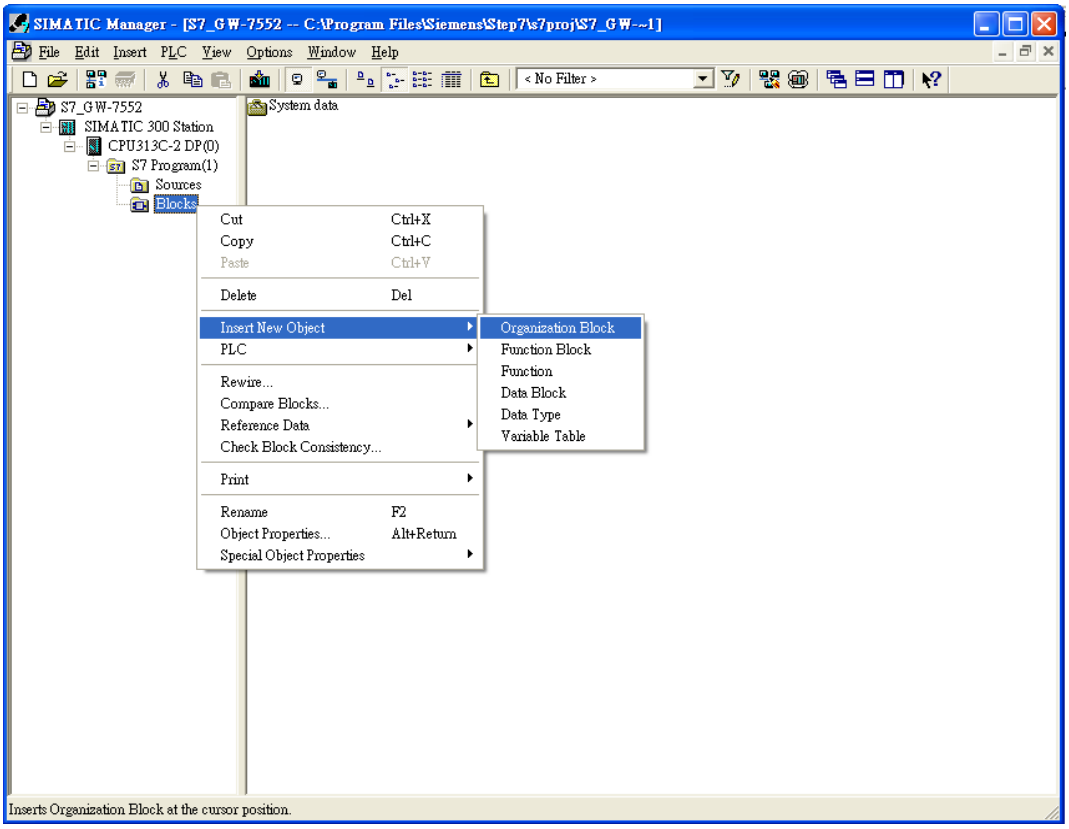


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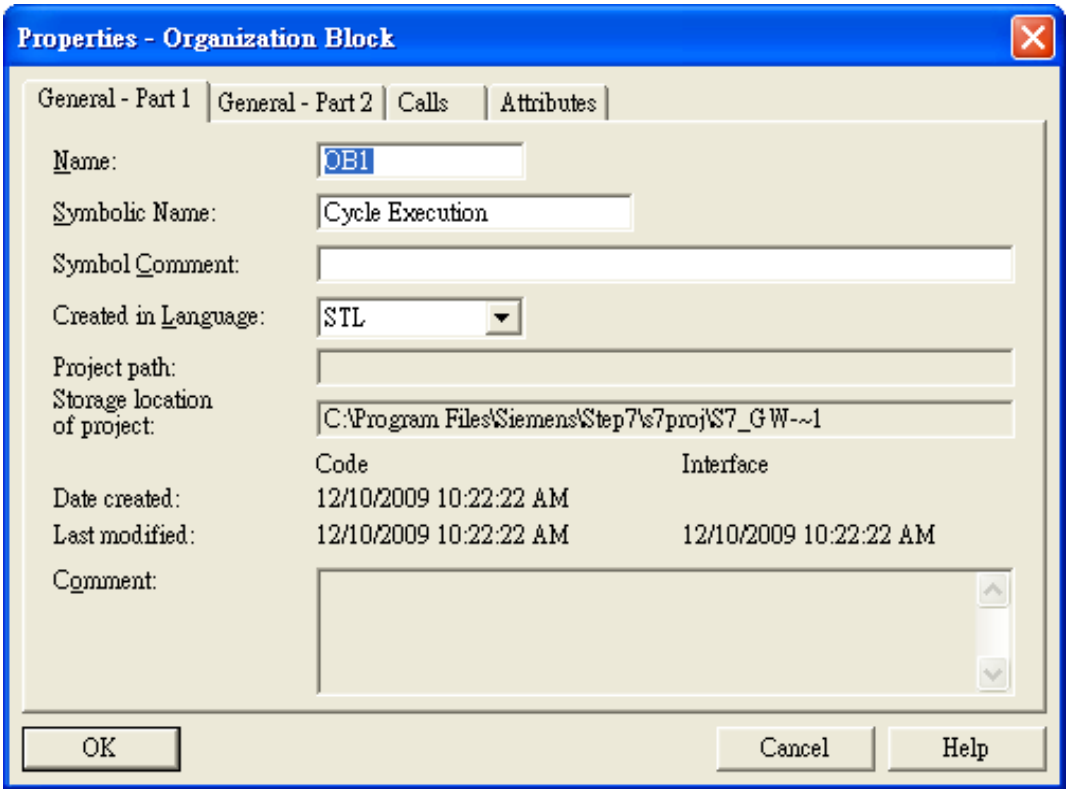
2. HW settings into SIMATIC PLC

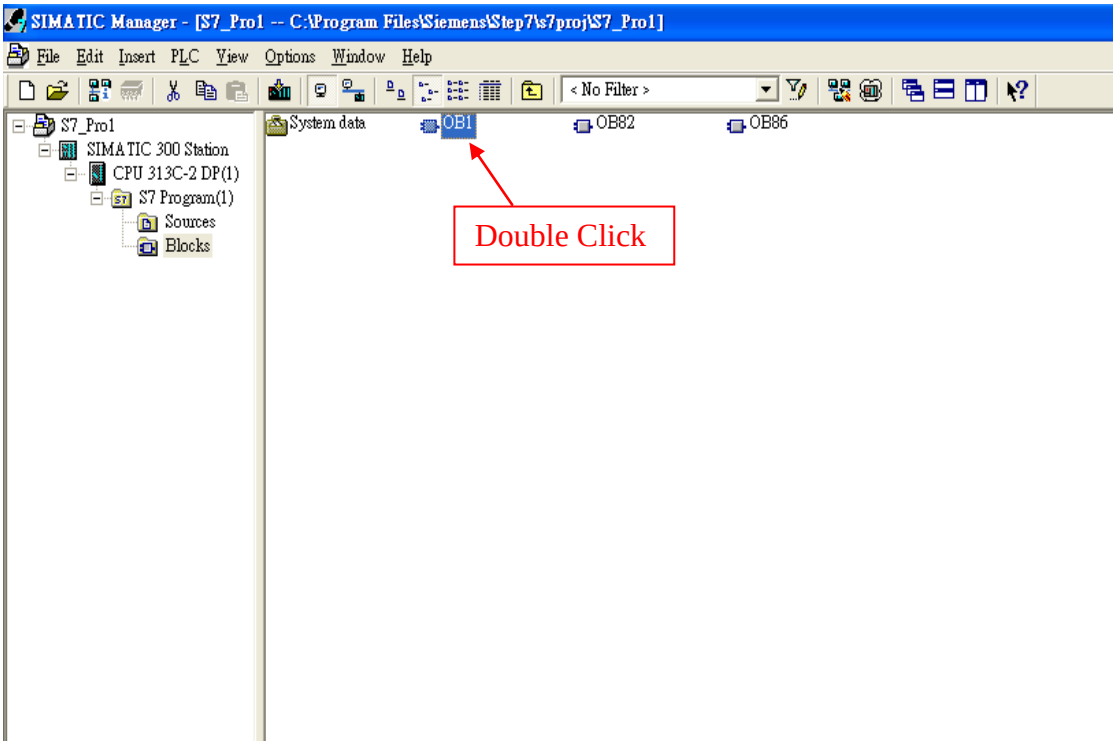


Step 4: Insert a new Organization Block (OB1,OB82,OB86)



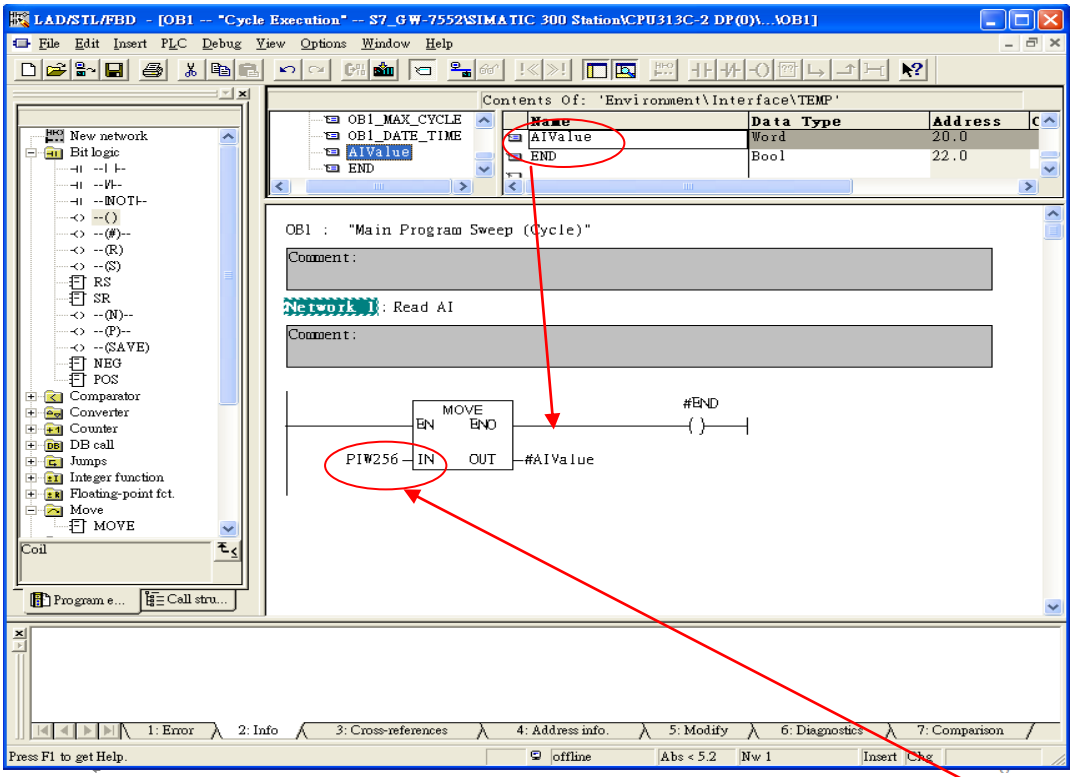
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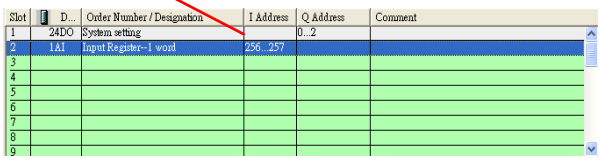




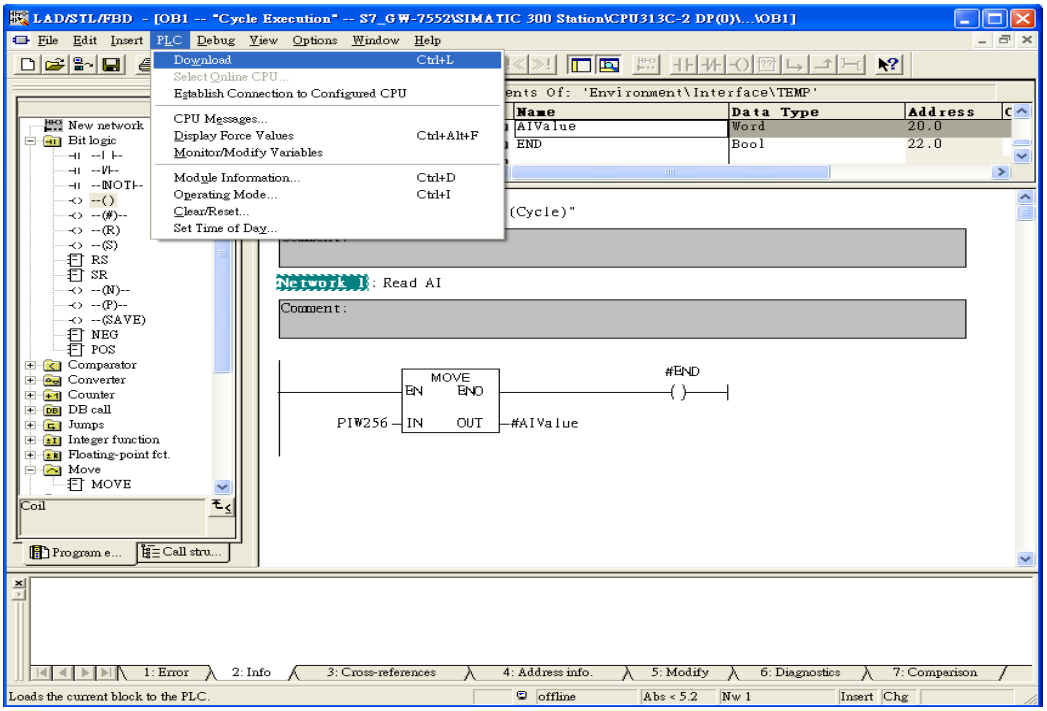
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Step 5: Edit OB1





Step 6: Download the settings into SIMATIC PLC

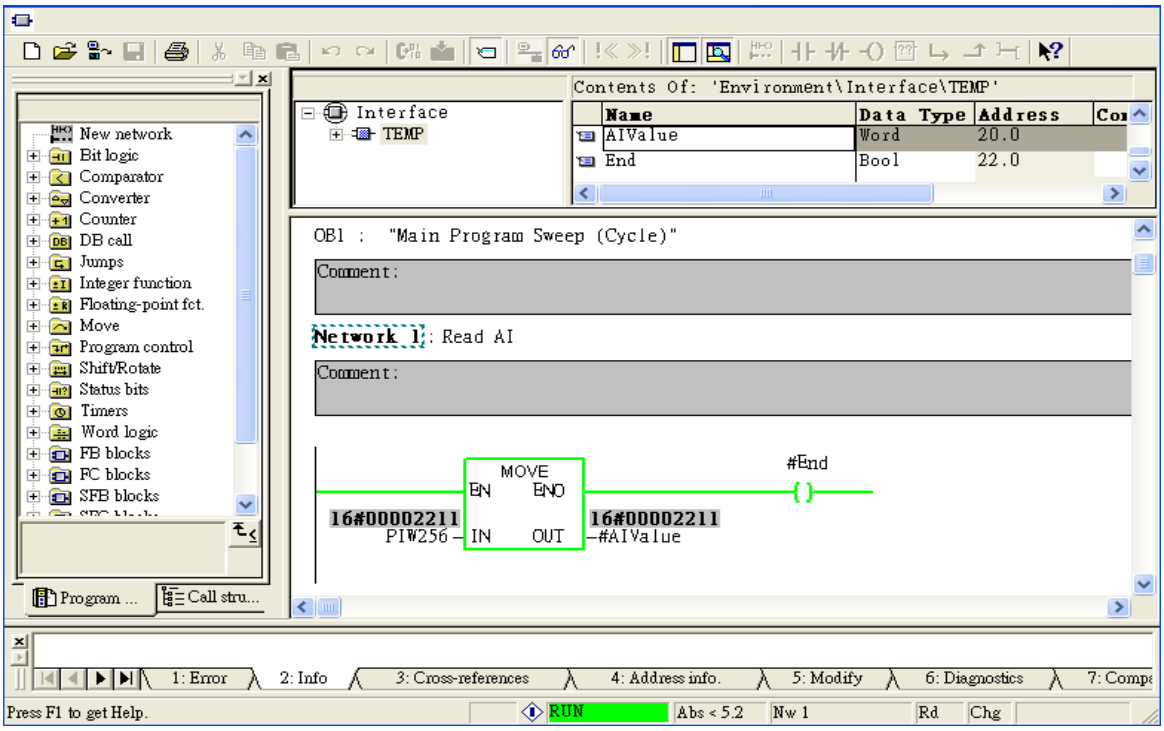


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Step 7: Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



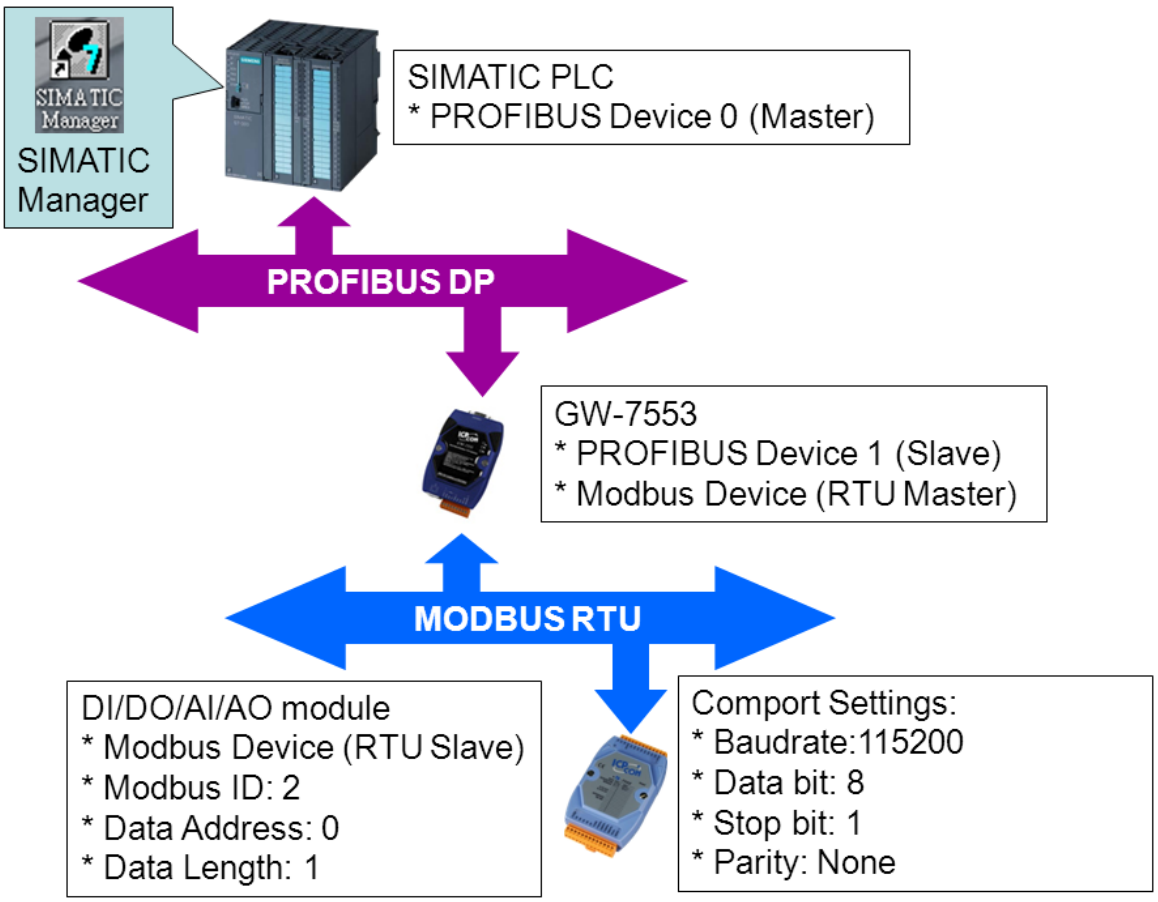
Now the setting procedure has been finished and the user can read the data of the Modbus AI module at address PIW256.



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Example 5: PLC writes DO module data to GW-7553.
(Modbus FC05,FC15)

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

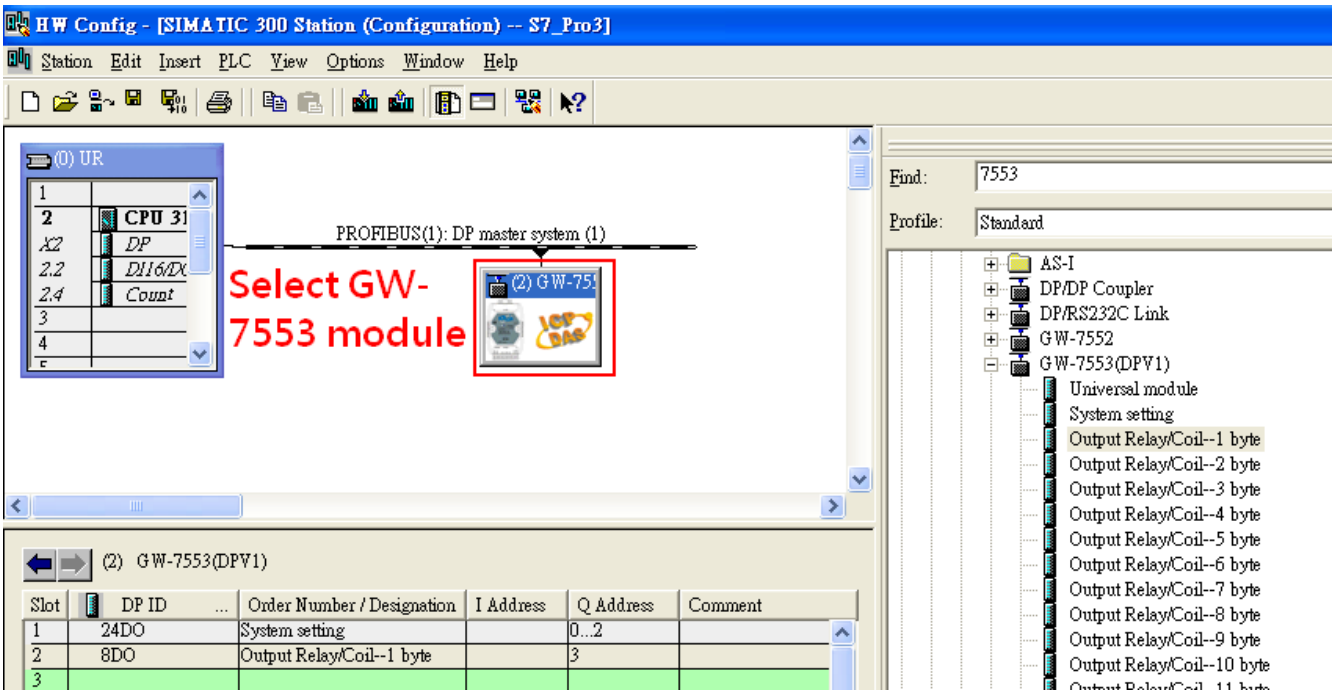


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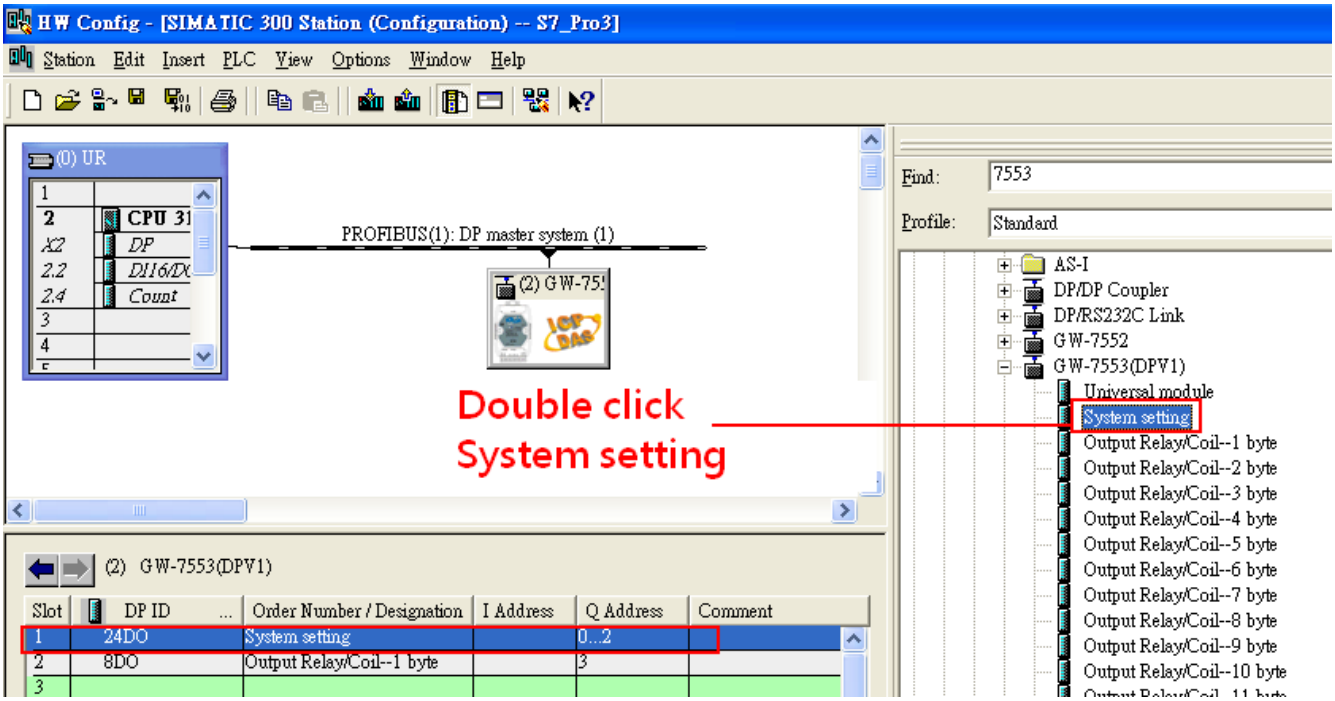
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Select GW-7553 module

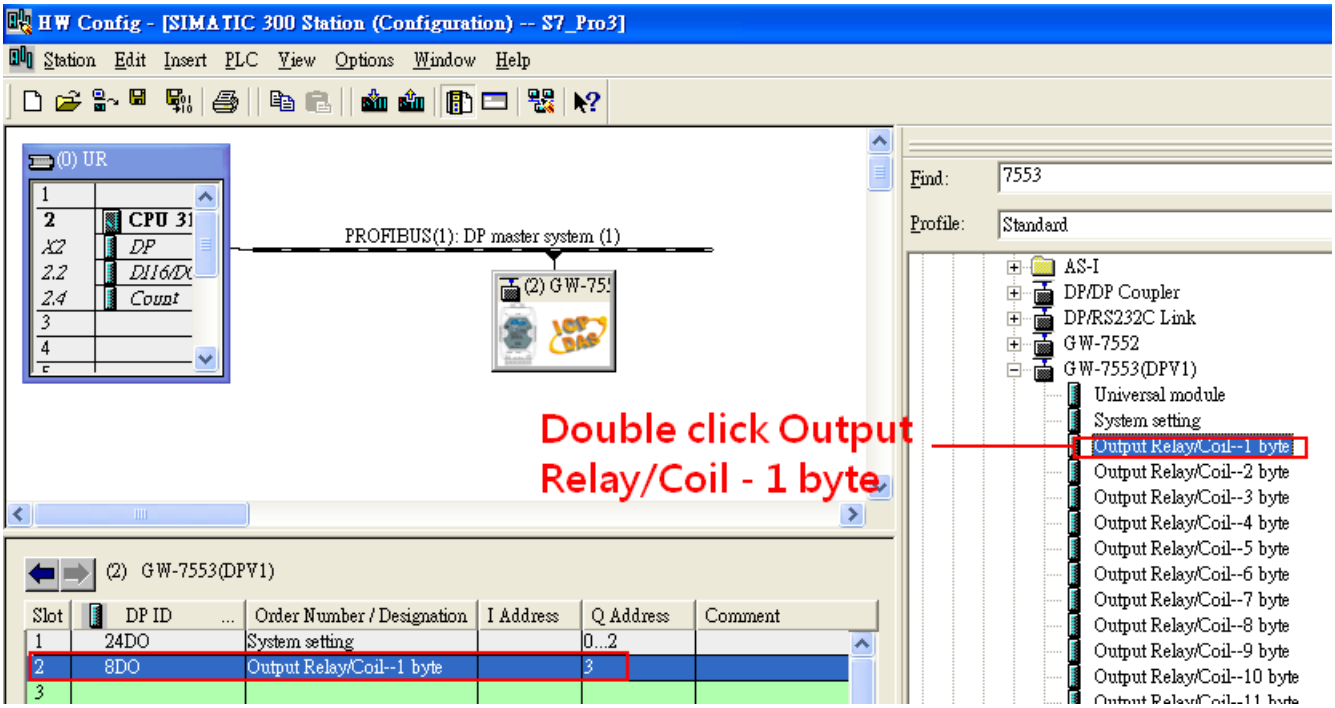


2. Add a System setting module



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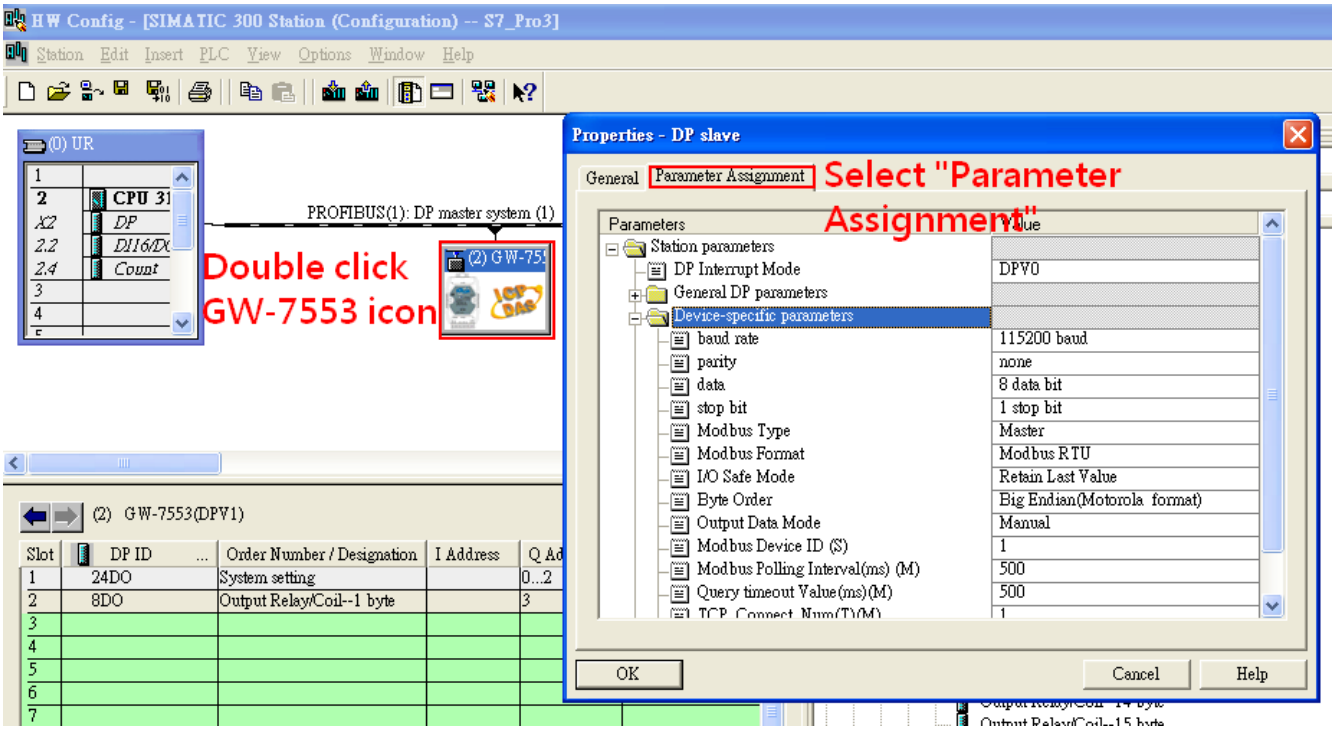
3. Add “Onput Relay/Coil—1 byte” module(For FC15,multiple coils, please select more than 1 byte module)



Step 2: Setup the parameters of the GW-7553

1. Double click GW-7553 icon

2. Select “Parameter Assignment”



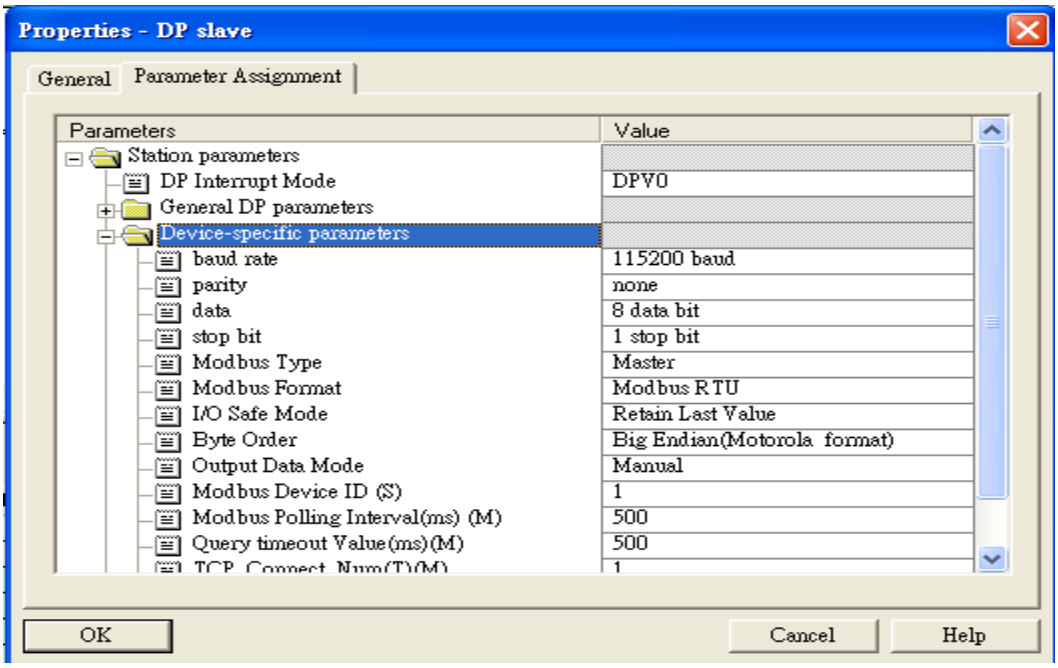
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3. Set common parameters of the GW-7553

Common parameters➔

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; Modbus type: Master

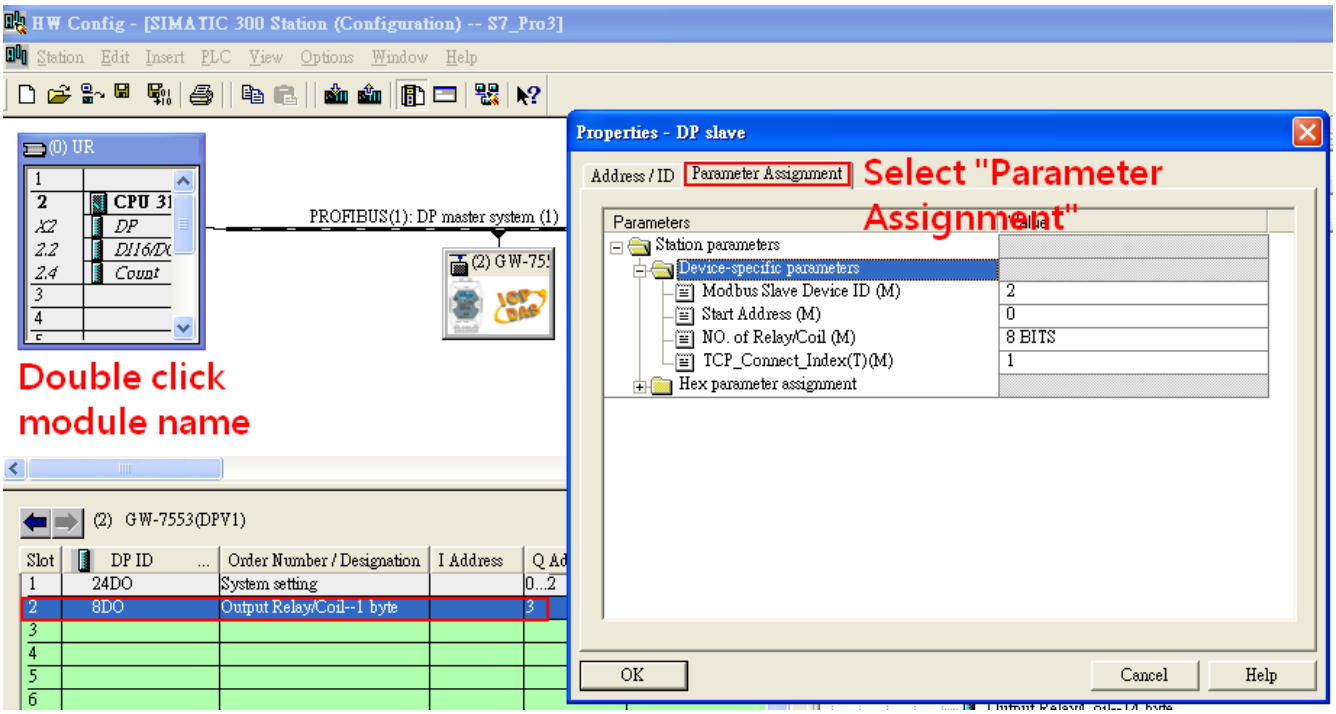
Modbus Format: Modbus RTU; Byte Order: Big Endian



4. Set module parameters of the GW-7553

(1)Double click “Output Relay/Coil—1 byte” module

(2)Select “Parameter Assignment”

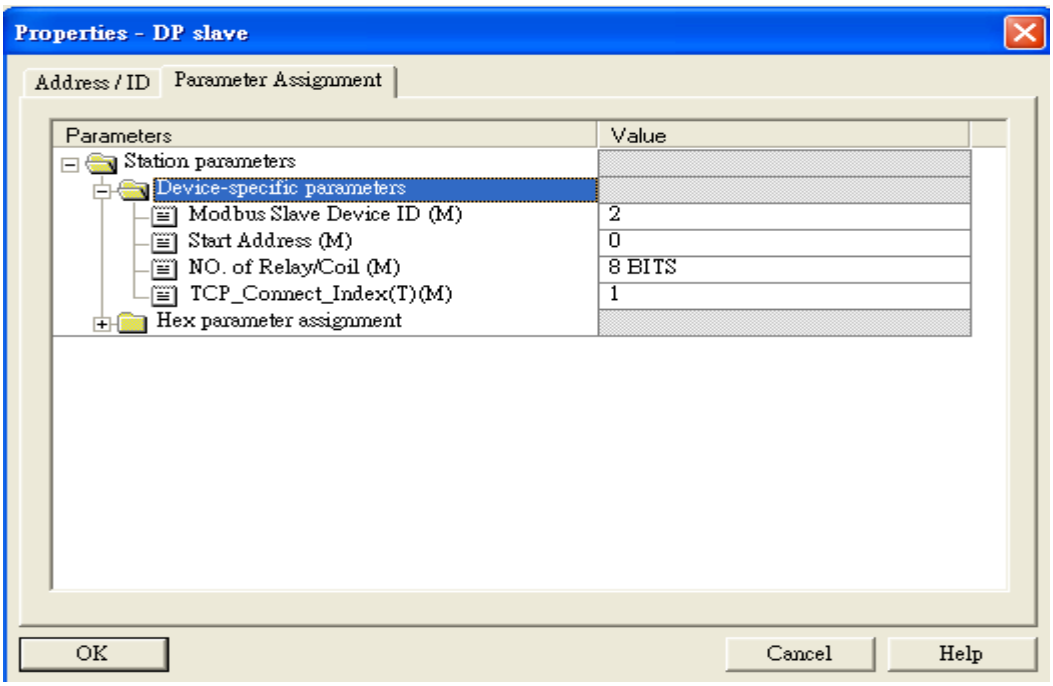


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5. Setup “Output Relay/Coil—1 byte” module parameters

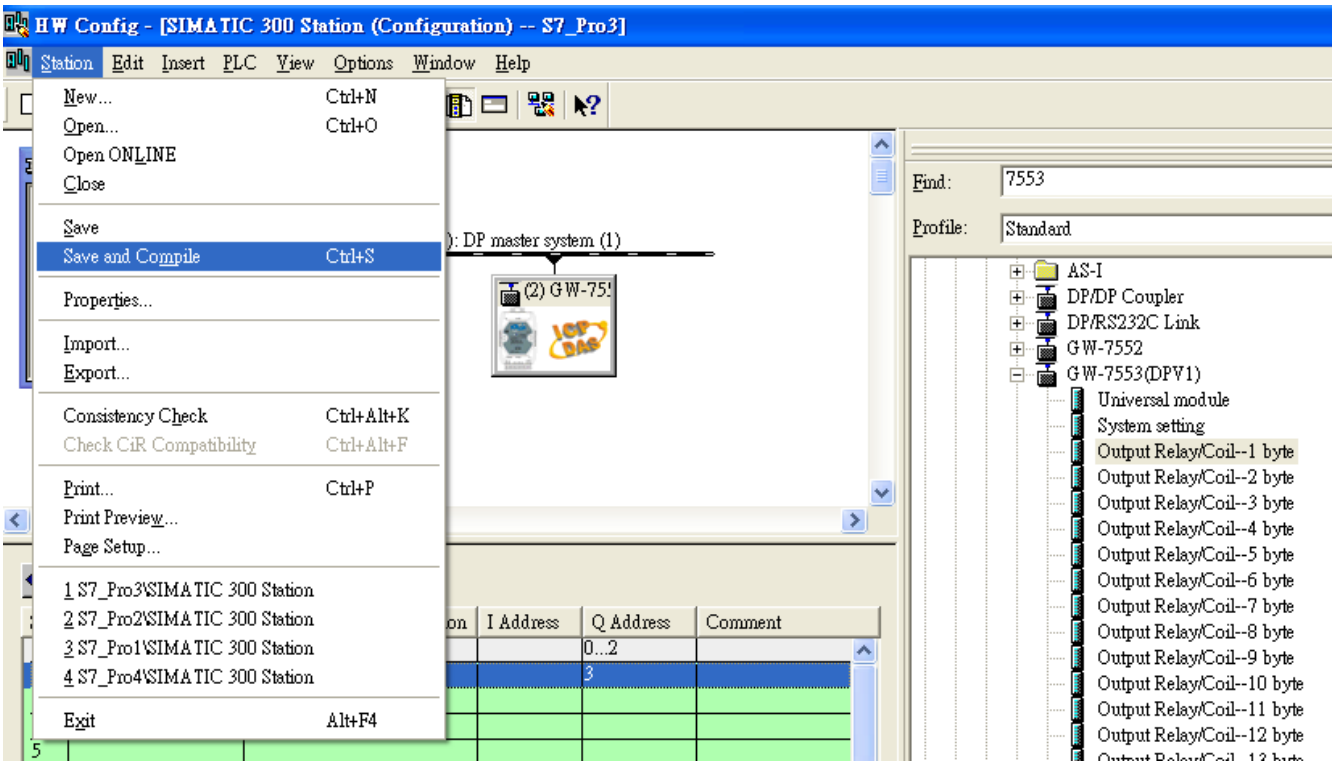
Module parameters➔

Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0)), click ok.



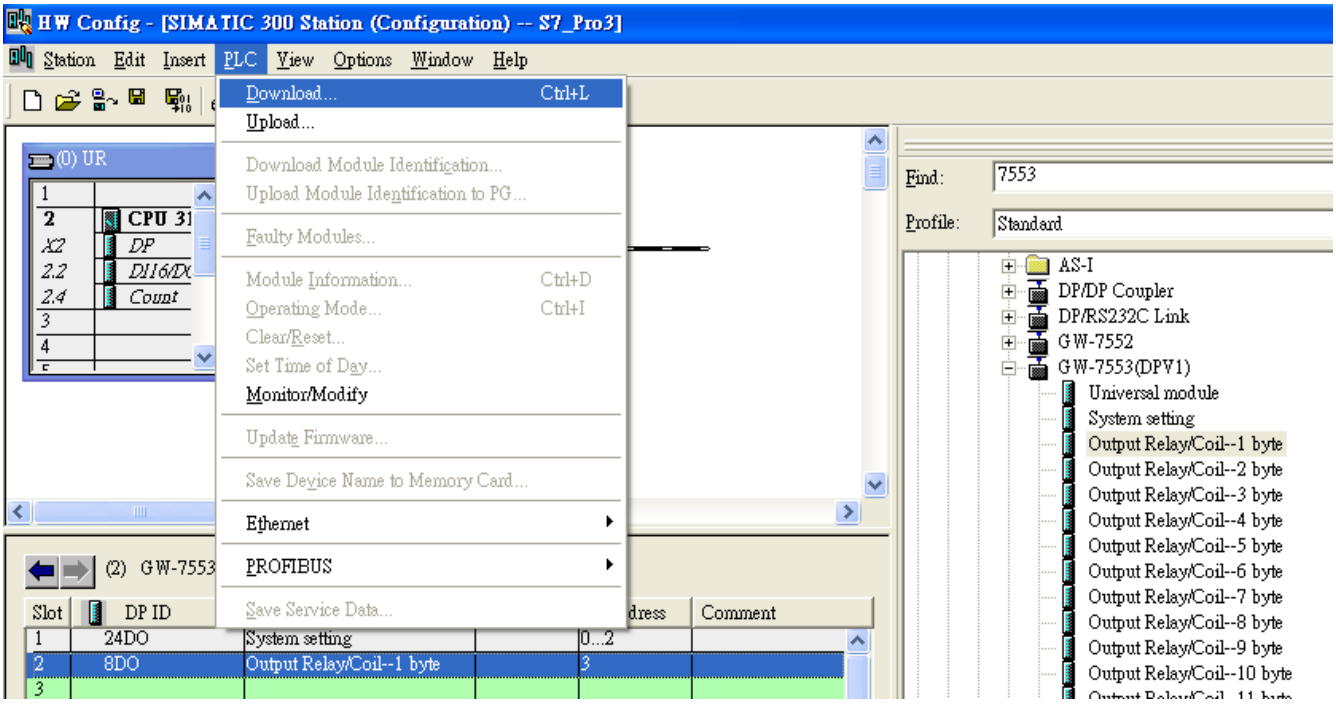
Step 3: Download the HW settings into SIMATIC PLC

1. Save and Compile

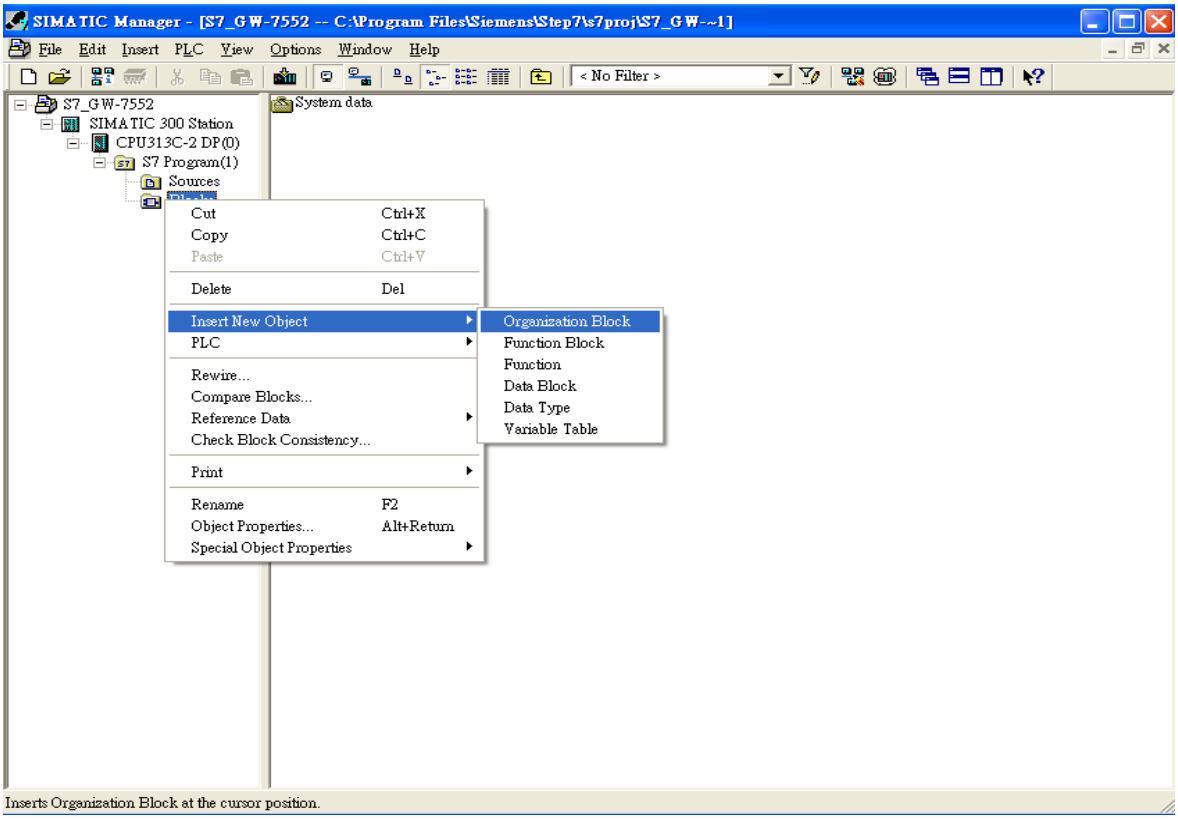


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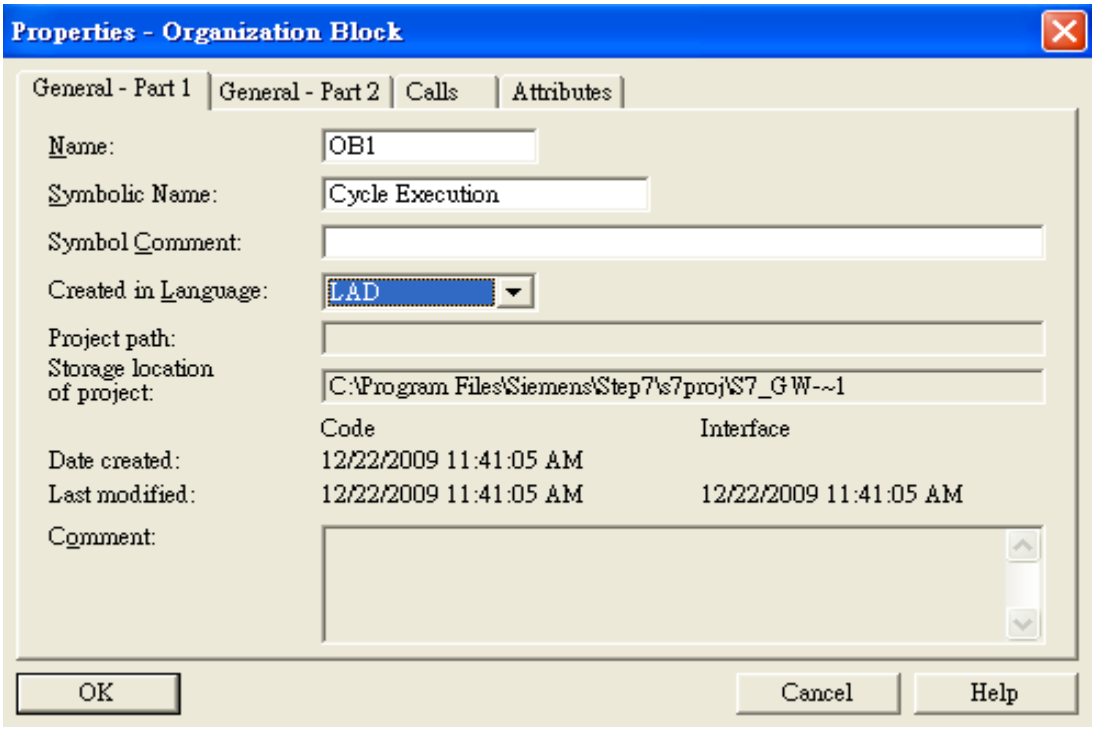
2. HW settings into SIMATIC PLC

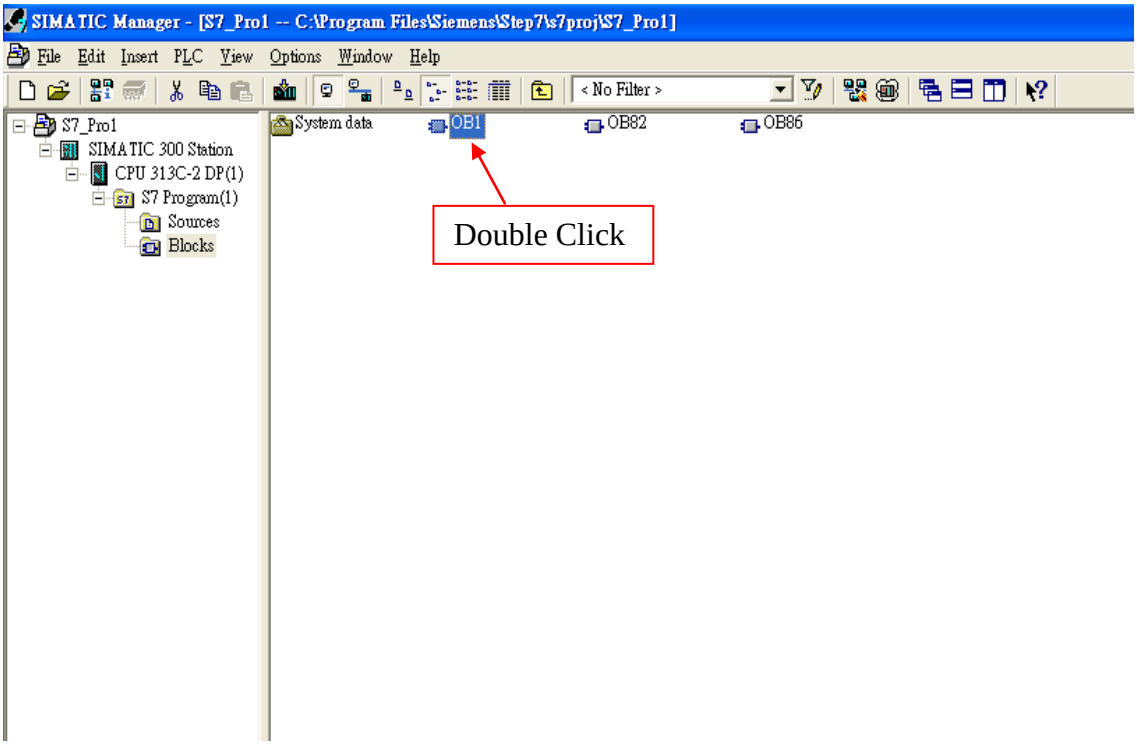


Step 4: Insert a new Organization Block (OB1,OB82,OB86)



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Step 5: Edit OB1

Variables used in the example LD Program:

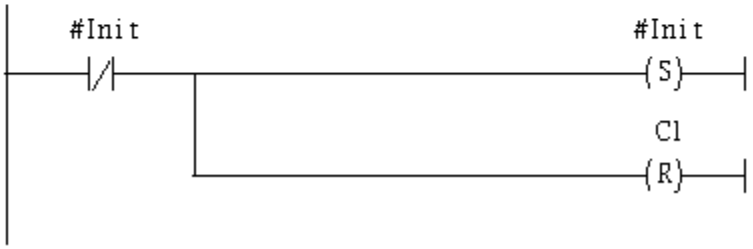
	Name	Data Type	Address	Comment
	OB1_DAT...	Date_...	12.0	Date and time OB1 started
	END	Bool	20.0	
	Init	Bool	20.1	
	Tri	Int	22.0	

OB1 : "Main Program Sweep (Cycle)"

Profibus Slave
Modbus Master

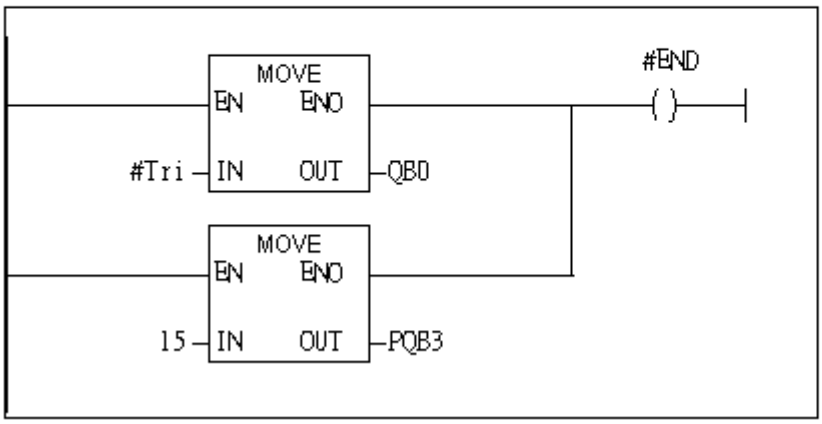
Network 1 : Title:

Comment:



Network 2: Title:

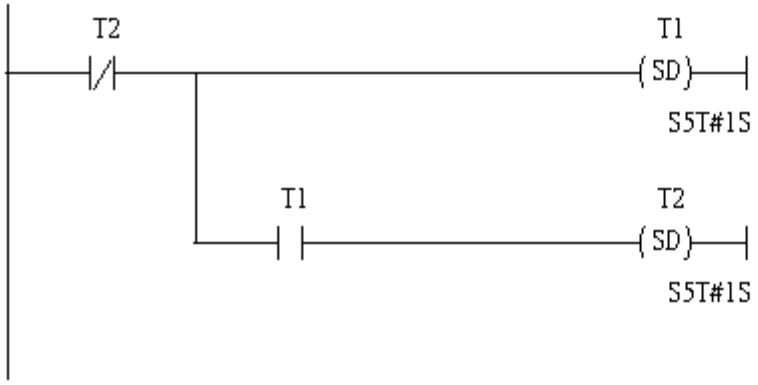
Comment:



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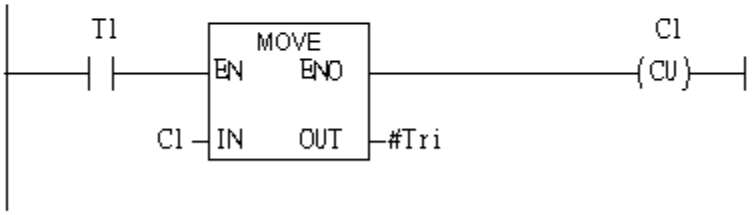
Network 3 : Title:

Comment:



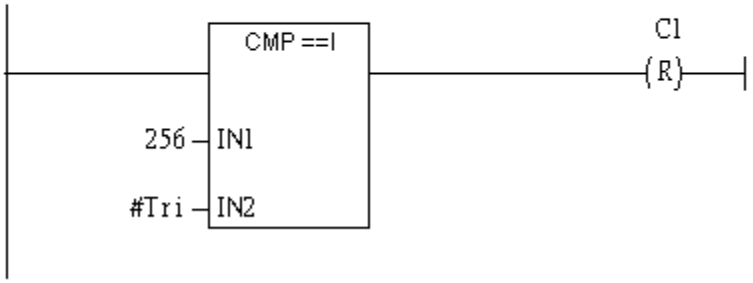
Network 4 : Title:

Comment:



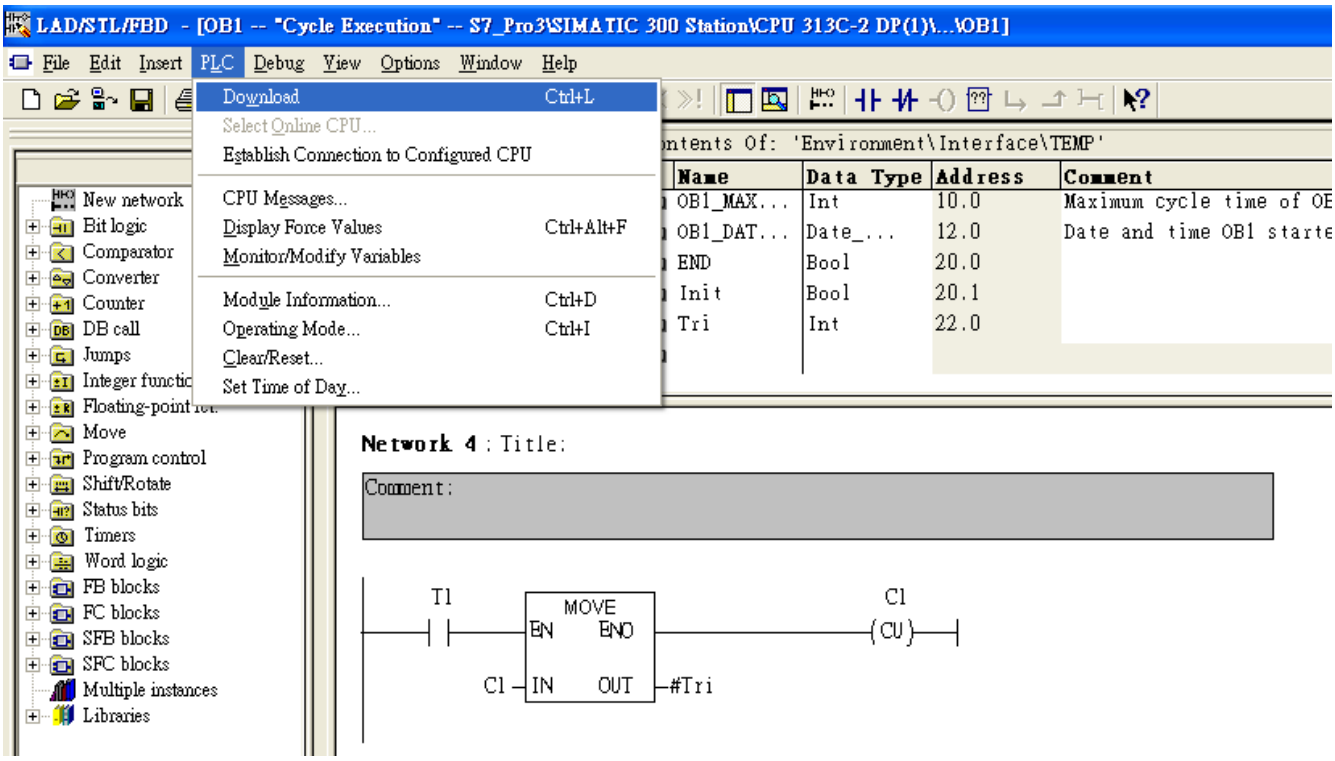
Network 5 : Title:

Comment:



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Step 6: Download the settings into SIMATIC PLC

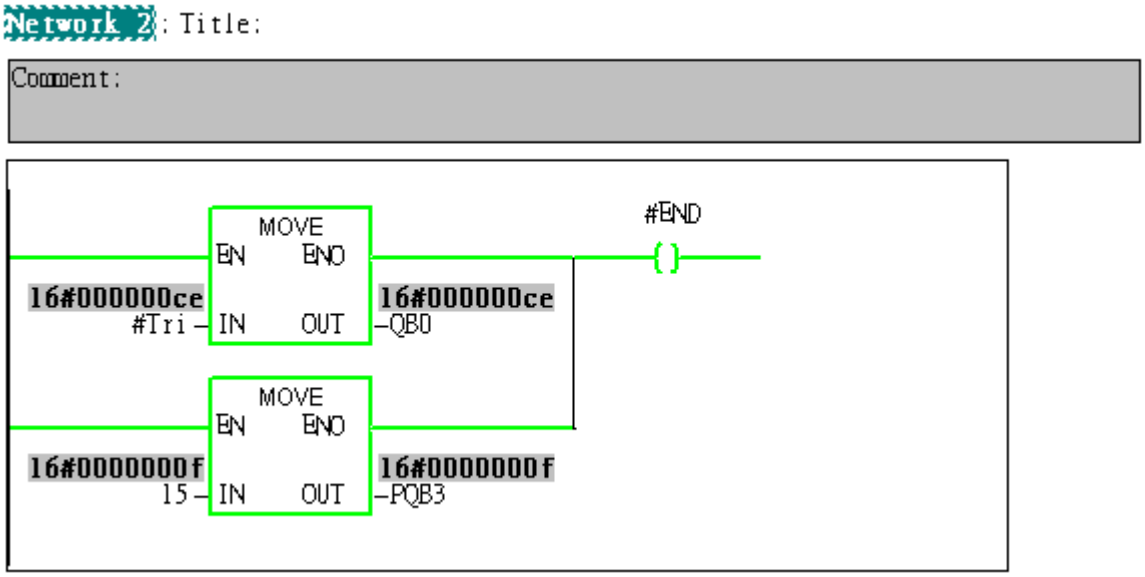


Step 7: Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



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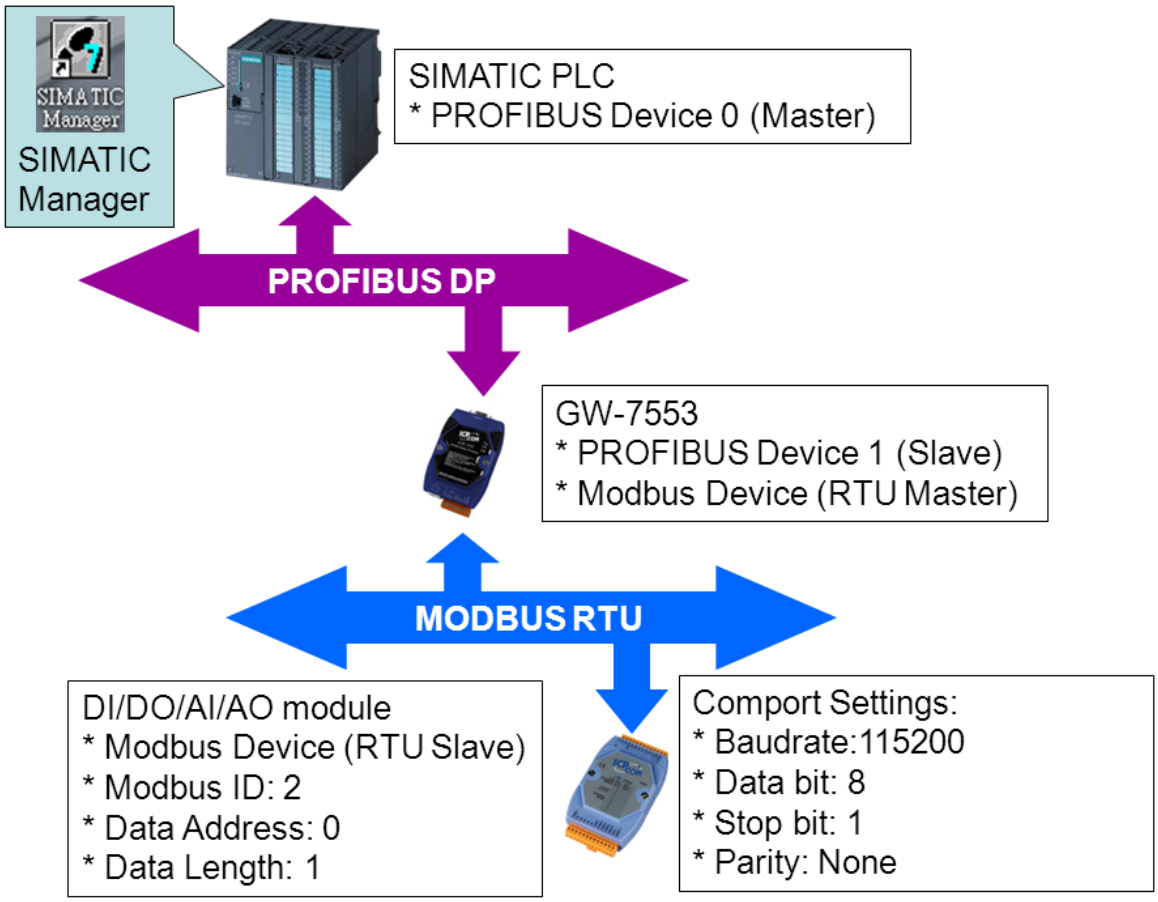
Now the setting procedure has been finished and the user can write the data to the Modbus DO module at address QB3.



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Example 6: PLC writes AO module data to GW-7553.
(Modbus FC06, FC16)

Write a Modbus RTU AO module (PROFIBUS Slave & Modbus RTU/Master)

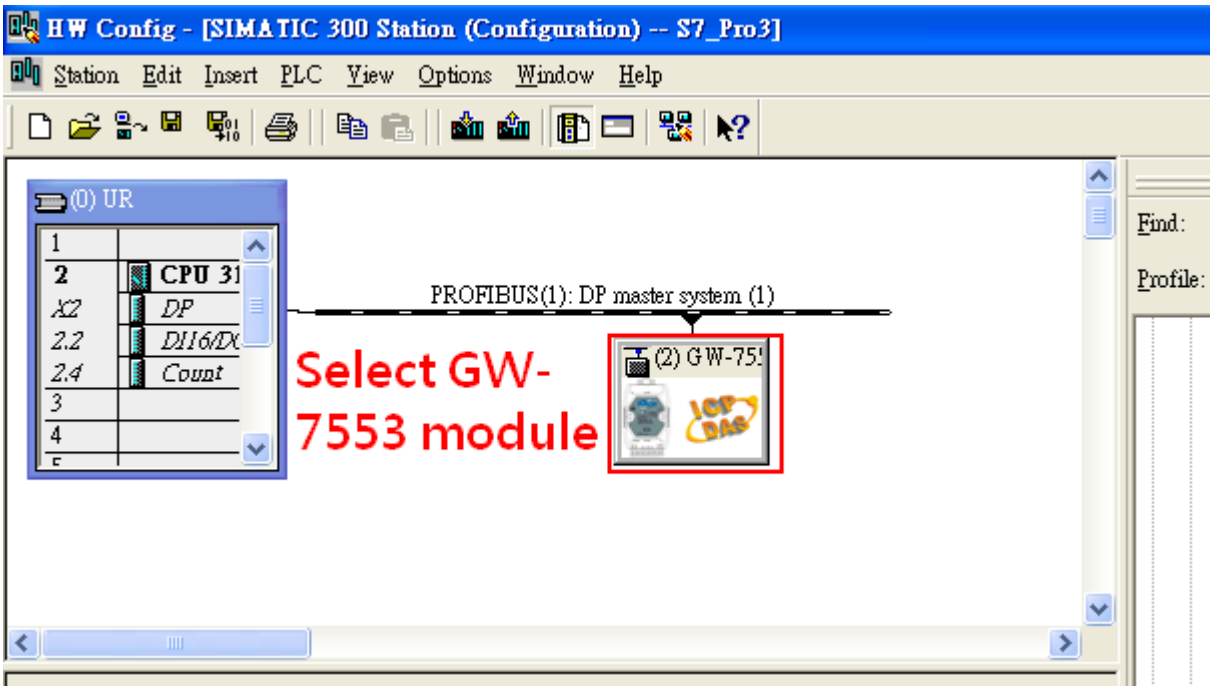


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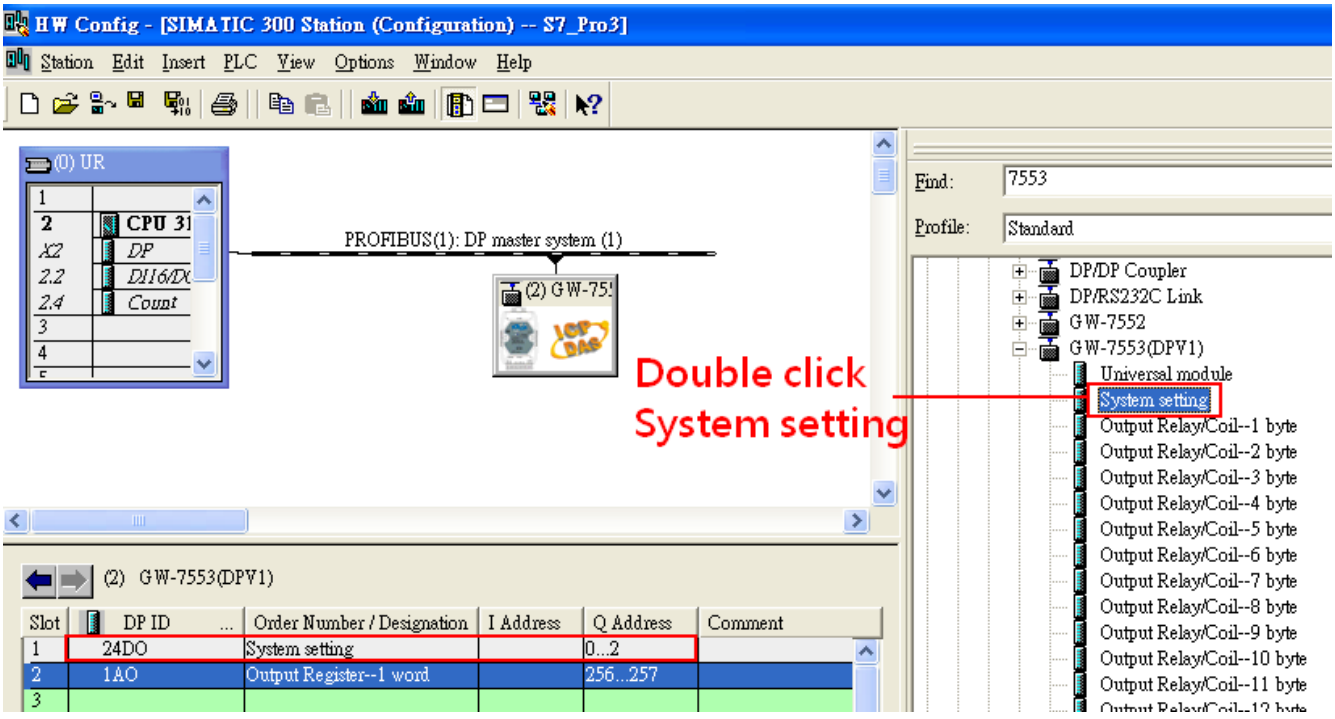
SIMATIC STEP7 Configuration:

Step 1: Setup the GW-7553 module

1. Select GW-7553 module

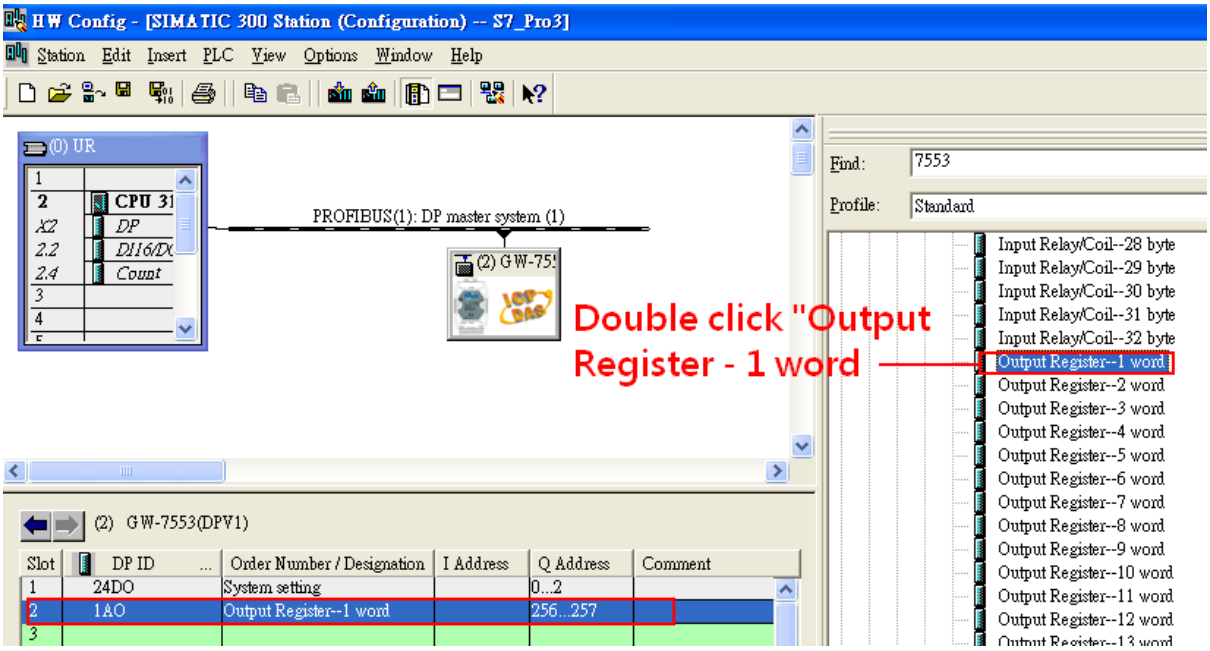


2. Add a System setting module



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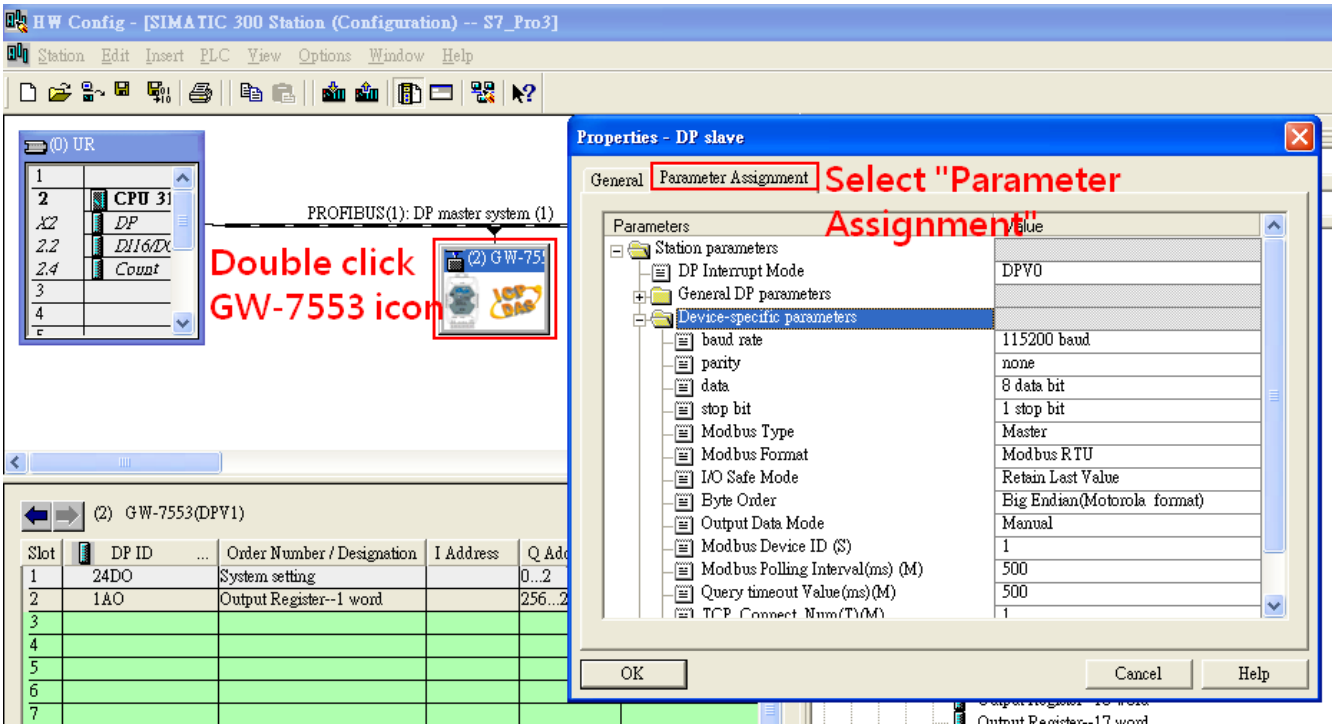
3. Add “Output Register—1word” module(For FC16,multiple registers, please select more than 1 word module)



Step 2: Setup the parameters of the GW-7553

1. Double click GW-7553 icon

2. Select “Parameter Assignment”



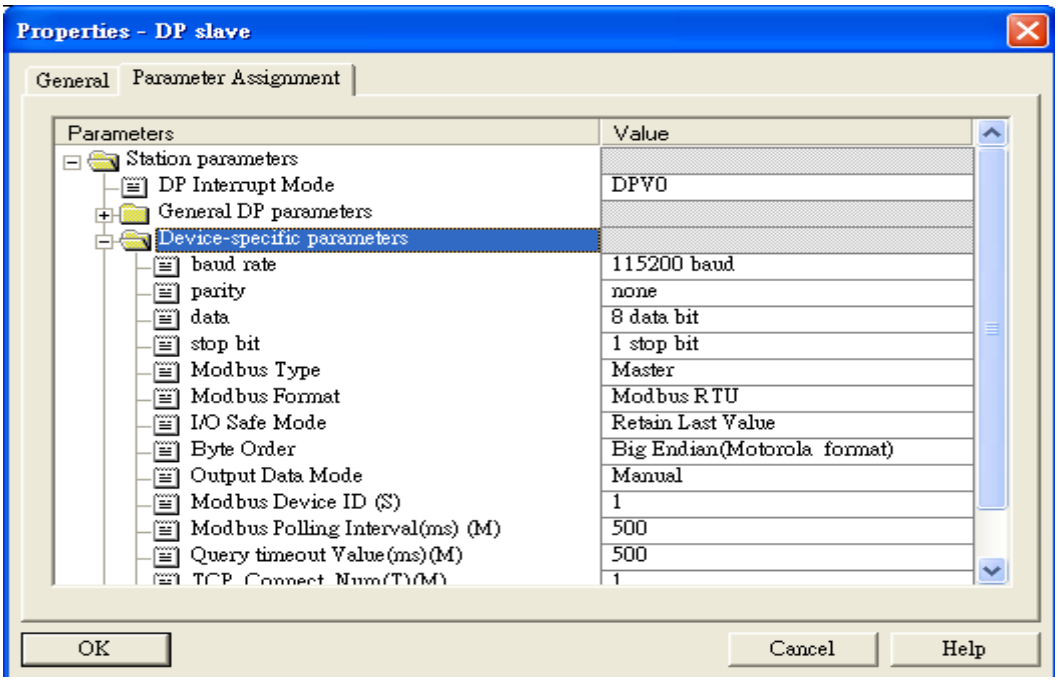
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3. Set common parameters of the GW-7553

Common parameters➔

Baud rate: 115200; Parity: none; Data: 8 data bit; Stop bit: 1 stop bit; Modbus type: Master

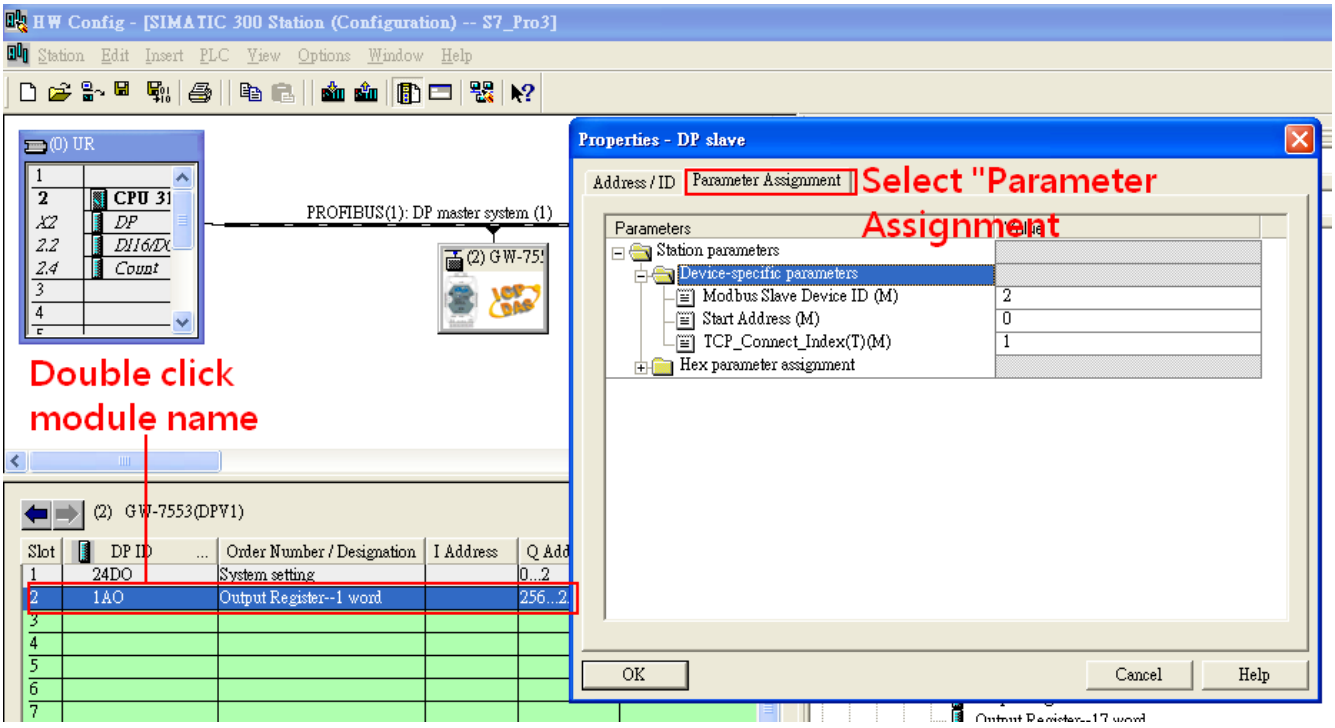
Modbus Format: Modbus RTU; Byte Order: Big Endian



4. Set module parameters of the GW-7553

(1)Double click “Output Register—1word” module

(2)Select “Parameter Assignment”

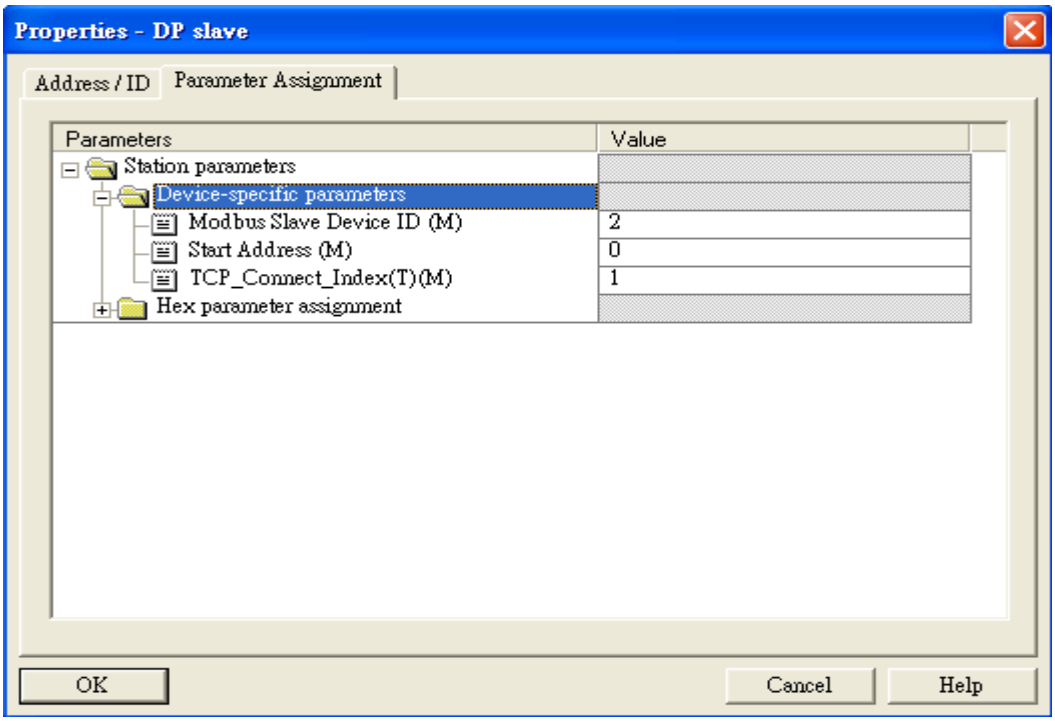


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5. Setup “Output Register—1 word” module parameters

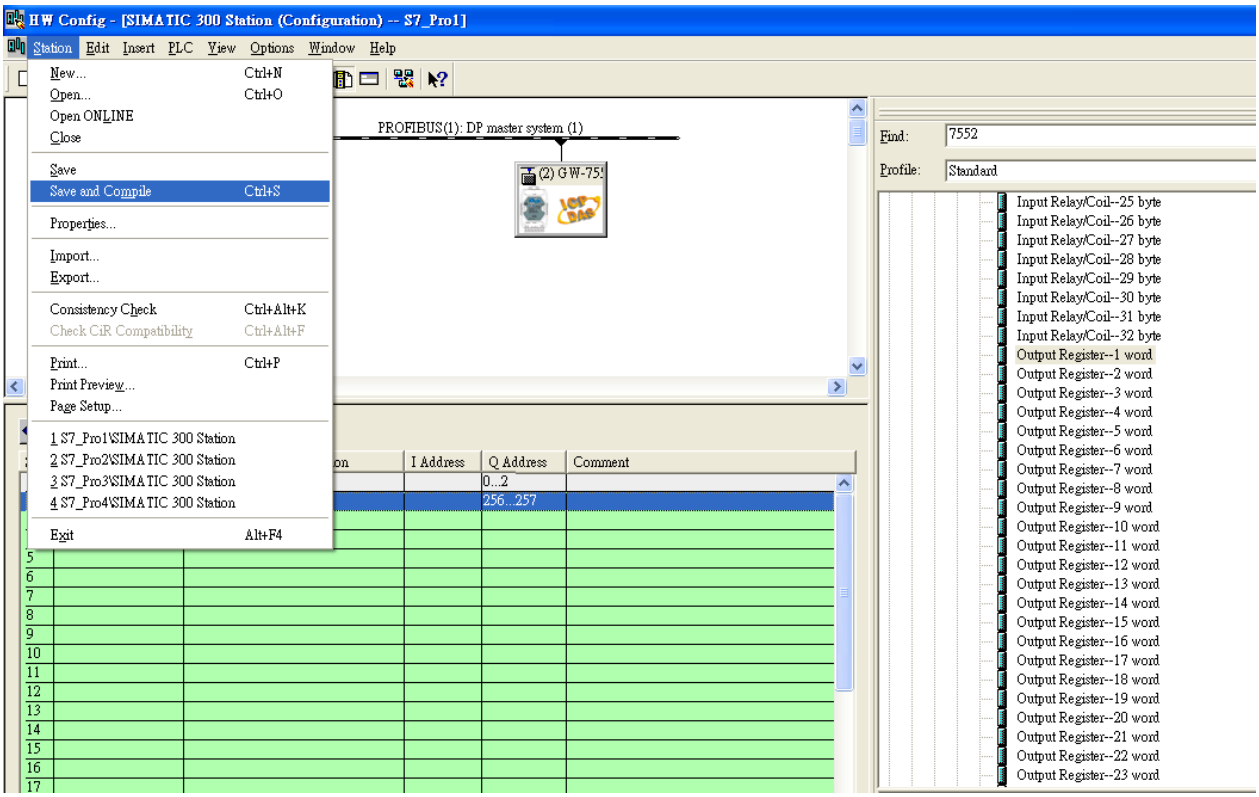
Module parameters➔

Modbus Slave Device ID: 2; Slave Address: 0 (Protocol address (base 0)), click ok.



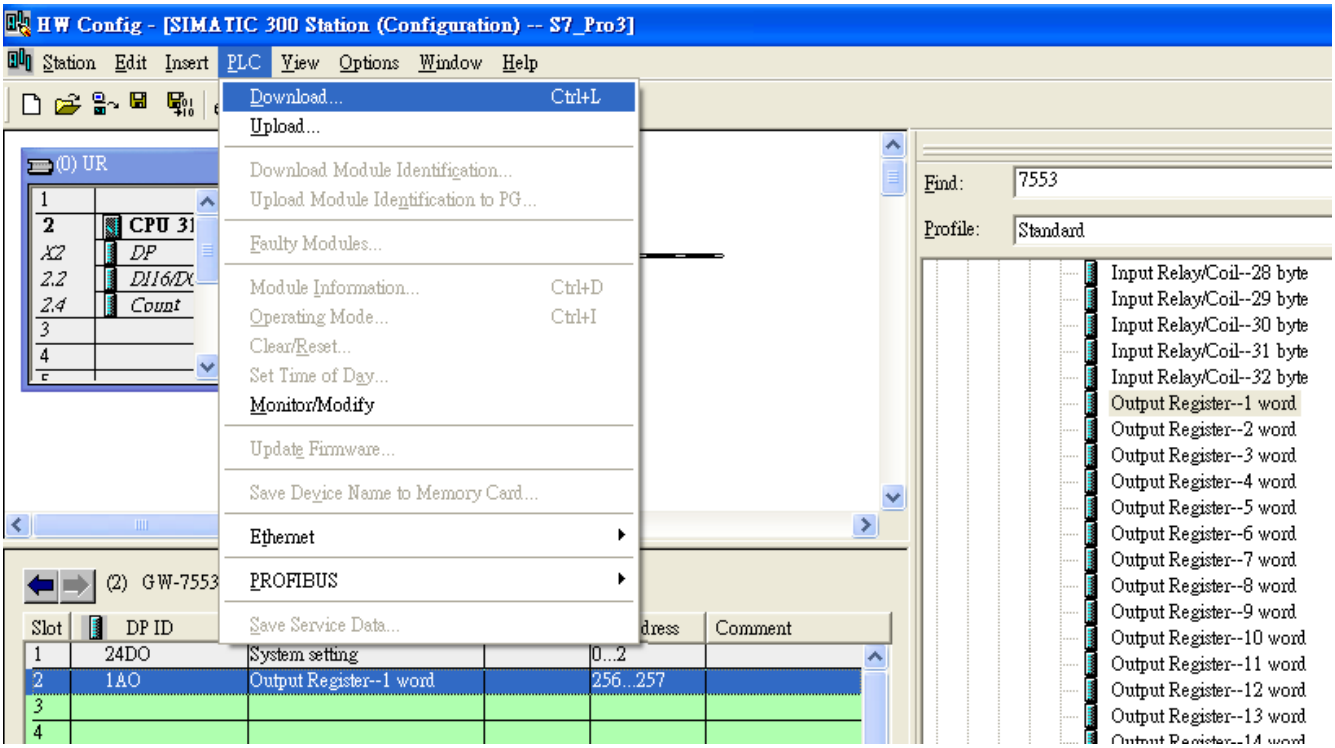
Step 3: Download the HW settings into SIMATIC PLC

1. Save and Compile

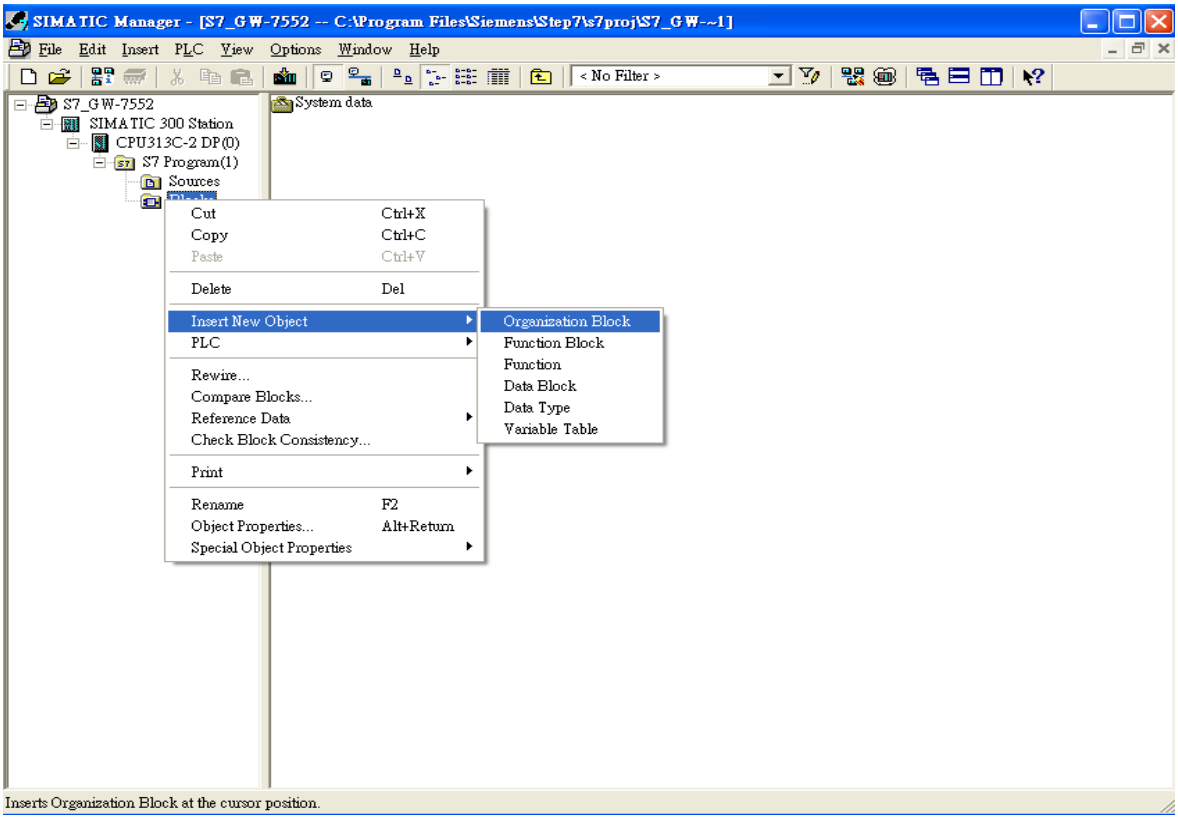


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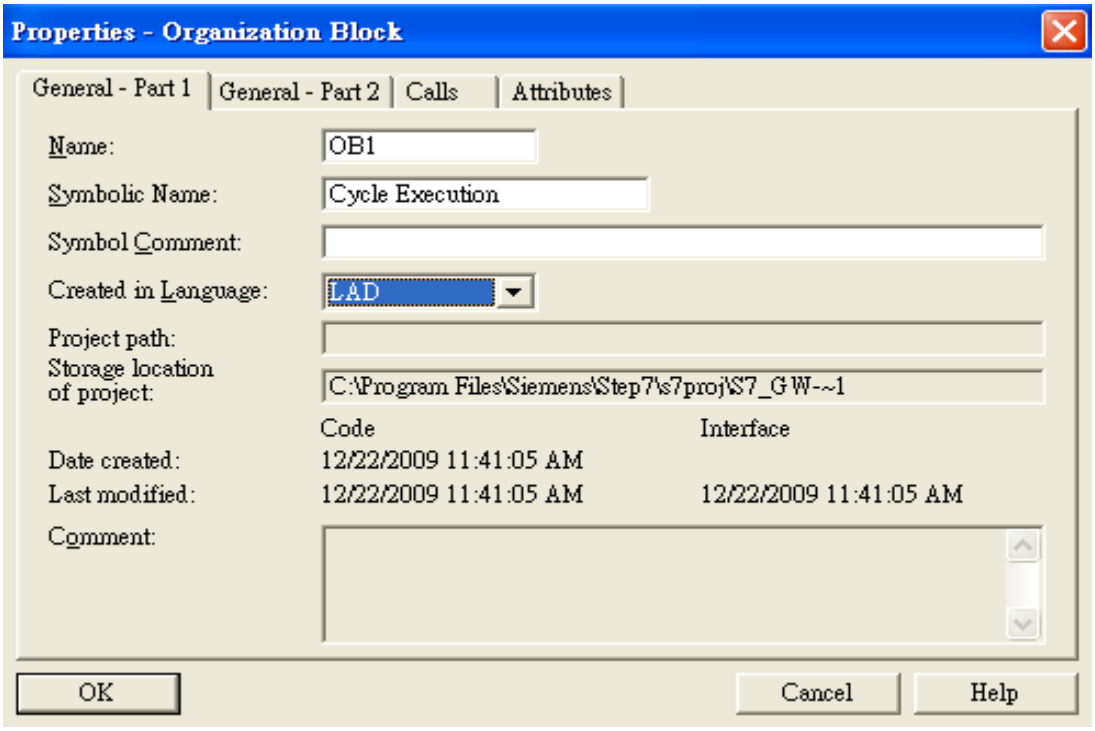
2. HW settings into SIMATIC PLC

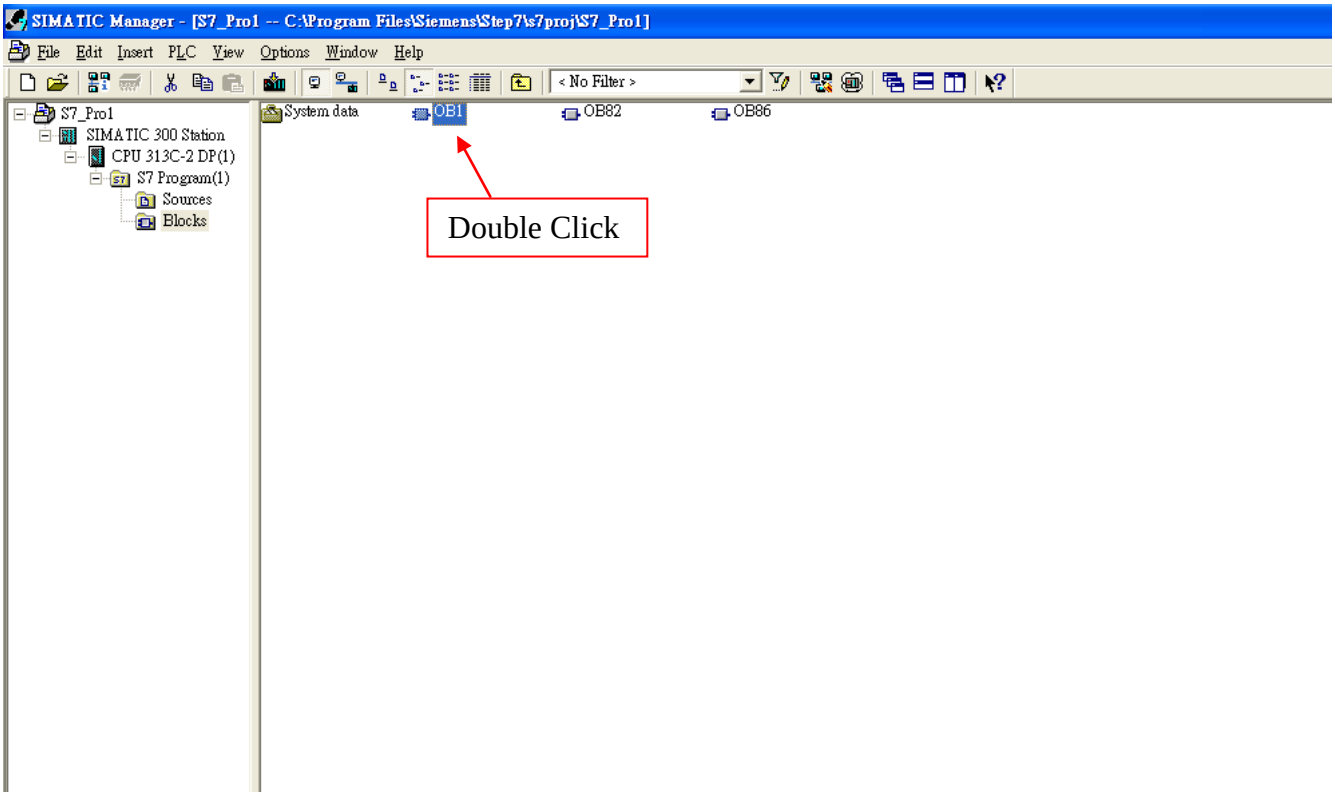


Step 4: Insert a new Organization Block (OB1,OB82,OB86)



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Step 5: Edit OB1

Variables used in the example LD Program:

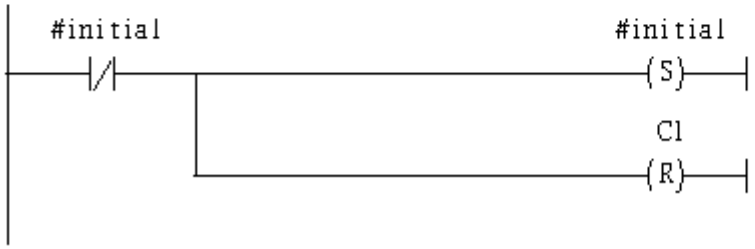
	Name	Data Type	Address	Comment
	OB1_MAX...	Int	10.0	Maximum cycle time of OB1 (milliseconds)
	OB1_DAT...	Date_...	12.0	Date and time OB1 started
	END	Bool	20.0	
	Tri	Int	22.0	
	initial	Bool	24.0	

OB1 : "Main Program Sweep (Cycle)"

PROFIBUS Slave
Modbus Master

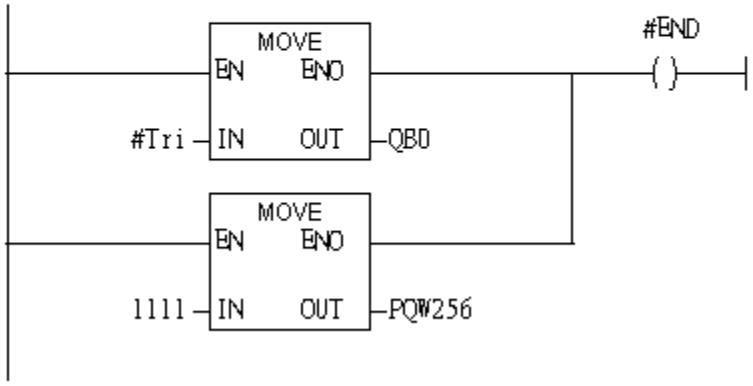
Network 1 : Reset Counter(C1)

Reset Counter(C1)



Network 2 : QB0 add "1" then PLC will send PQB256 out.

1 word 16AO

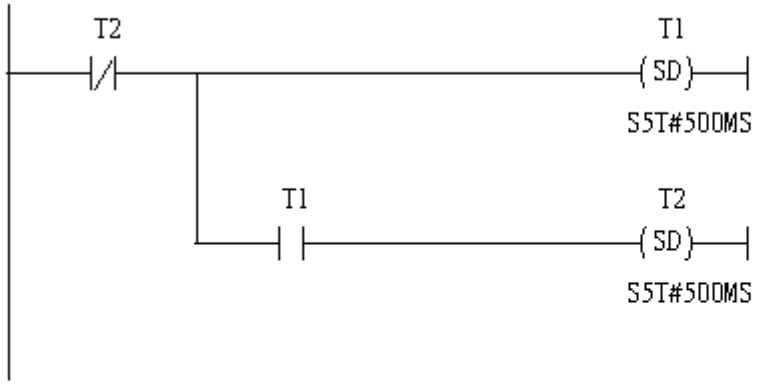


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Using T2 trigger T1 If counter (C1) add 1 and Tri will add 1 every 1s.

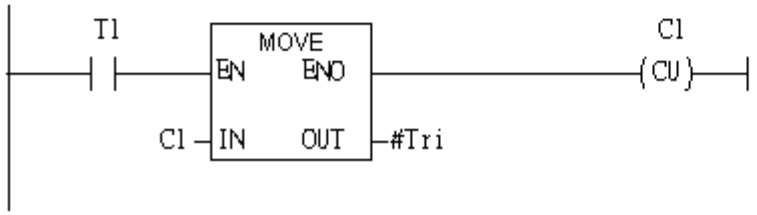
Network 3 : Timer T1 & T2

Using T2 trigger T1



Network 4 : Counter C1

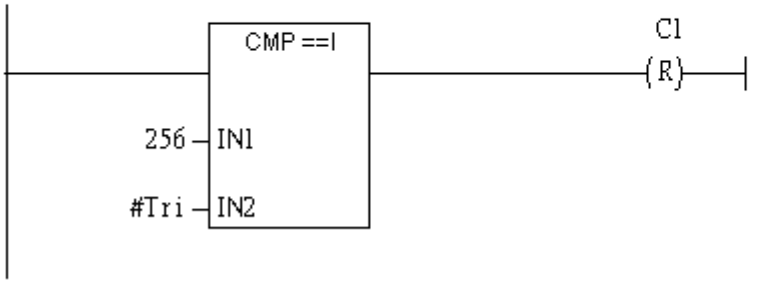
If counter(C1) add "1" and Tri will add "1" ,too.



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

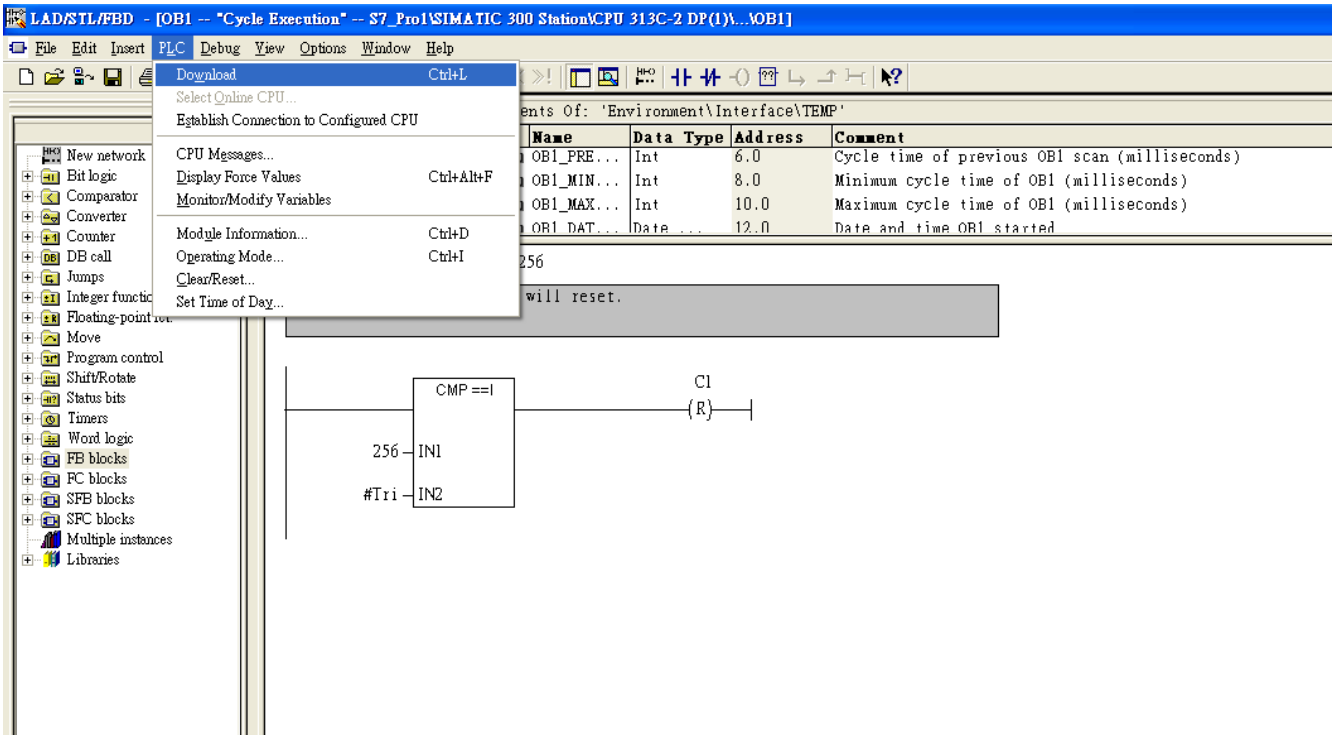
Network 5 : Compare Tri & 256

If Tri is equal to 256 ,C1 will reset.



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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.

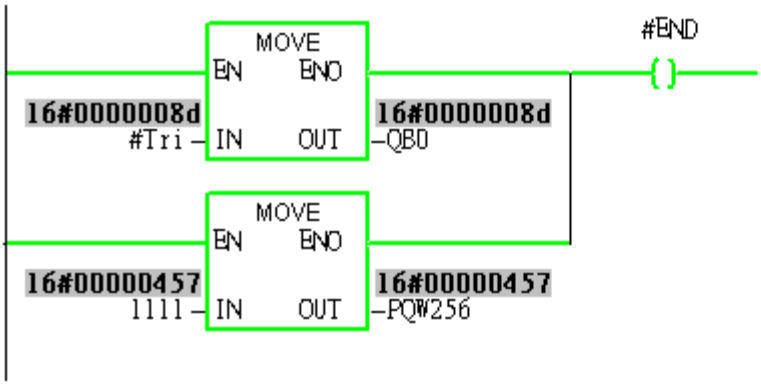


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Now the setting procedure has been finished and the user can write the data to the Modbus AO module at address PQW256.

Network 2 : QB0 add "1" then PLC will send PQB256 out.

```
1 word 16AO
```



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