CBT-1060 V1.0 User Manual

Profinet/Modbus Communication bus translator

(Edition of December 2018)

1、Basic parameters of product

The CBT-1060 can adopt protocol of standard Profinet, and support a variety of configuration software, PLC system. It is used to connect the standard MODBUS RTU from the device to the Profinet bus. The working voltage of the product is DC7.5-36V. The standard rail is installed. Each communication port and power supply are all photoelectric isolated. The isolation voltage is up to 2500V. Meantime, the communication port has design of anti-static and anti-surge, and the dual Profinet communication ports also have standard Ethernet switch function,The main parameters are as follows:

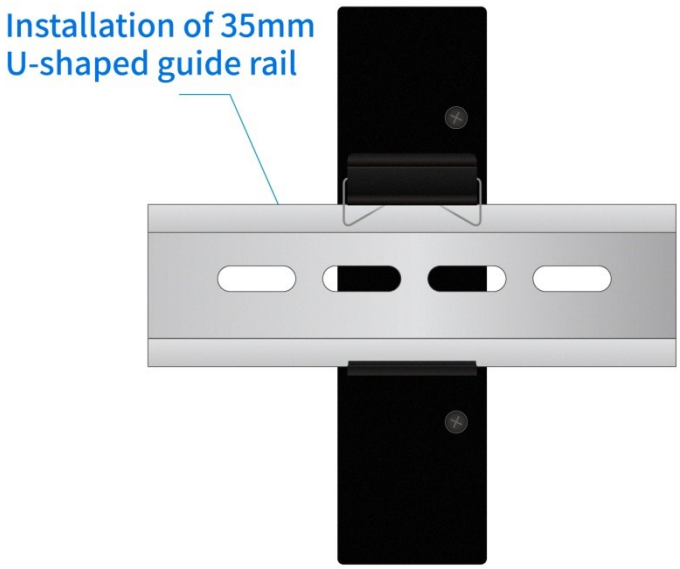
Working Voltage		DC7.5-36V,The module contains reverse power protection.
Power Consumption		＜3W
Profinet	Interface Form	RJ45 x2
	Protocol Type	Profinet
	Security	Isolation voltage 2500V from other circuits, can withstand 500W, 1000us lightning.
	Transmission Distance	＜1200M
	Communication Rate	10/100Mbps base-Tadaptive, with Auto MDI/MDI-X function.
	Input/Output Range	② Max Input Bytes ≤1440 Bytes ③ Max Output Bytes ≤1440Bytes
Modbus	Interface Form	Plug-in terminal 485 bus
	Protocol Type	MODBUS RTU supports 01、02、03、04、05、06、15、16 commands
	Security	Isolation voltage 2500V from other circuits, can withstand 500W, 1000us lightning.
	Transmission Distance	＜1200M
	Communication Manner	1.2Kbps － 115.2Kbps, 8 data bits, 1 stop bit, odd/even/no parity configurable.
Isolation Manner		Photoelectric Isolation
Application Range		Linking device of MODBUS RTU to Profinet host for exchange data.
Product Feature		Use original imported Siemens processor, dual hardware and software watchdog, self-diagnosis of equipment status,high stability.
Working Mode		MODBUS communication port Host/Slave mode, Profinet Slave.
Conversion Ability		Fifty MODBUS devices were supported connection.
Size		112*30*90mm
Weight		Without packing about 0.35Kg
Installation Manner		Standard U-type track and flat installation

2、Hardware configurable of product

（1）Size of product(without trace clamp and connector)112*30*90mm.

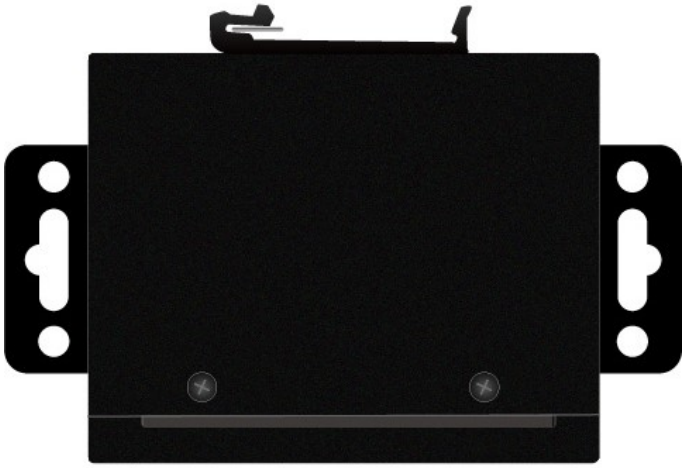
45°view

（2）The Product adapts installation of 35mm U-type trace.



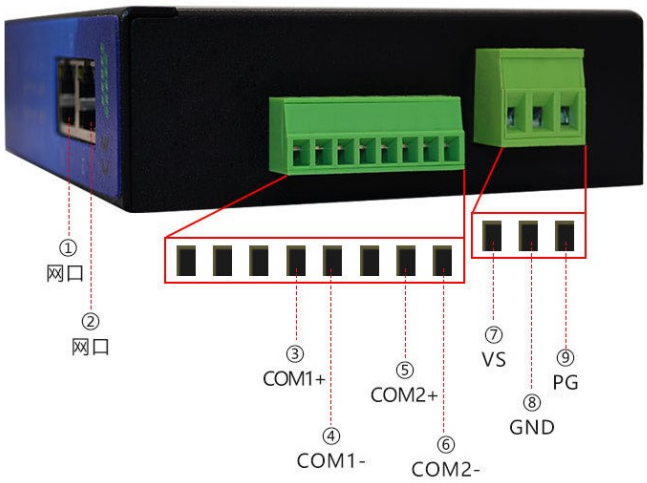
（3）After the mounting ears are unfolded by tools, the product adapts for

screw fixed installation.



Module Installation Diagram

（4）Schematic diagram of module terminals and terminal definition description.



Serial Number		Location in The Picture	Terminal Name	Function Instruction
Net Port	X1	②	P1	Profinet Communication Port1
		①	P2	Profinet Communication Port2
8 Holes Terminal	1		NC	User is unavailable, please leave vacant
	2		NC	User is unavailable, please leave vacant
	3		NC	User is unavailable, please leave vacant
	4	③	COM1+	485 Communication Port1 Data+
	5	④	COM1-	485 Communication Port1 Data-
	6		NC	Unused
	7	⑤	COM2+	485 Communication Port2 Data+(When terminal need be equipped.)
	8	⑥	COM2-	485 Communication Port2 Data-(When terminal need be equipped.)
3 Holes Terminal	1	⑦	VS	Device Power Positive
	2	⑧	GND	Device Power Negative
	3	⑨	PG	Power Grounding

（5）Main application framework

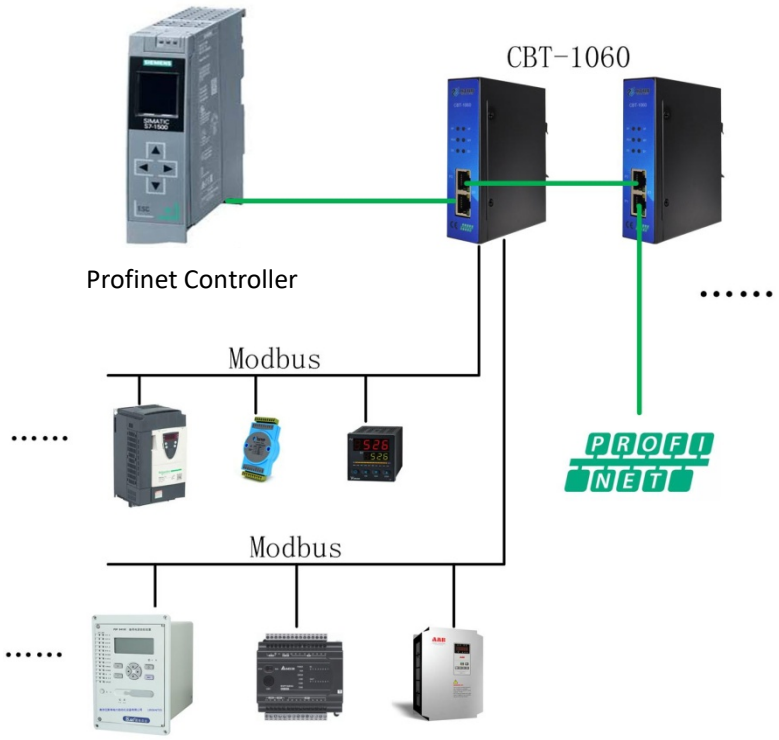


Figure 5.

The CBT-1060 has two Ethernet communication ports. When manner communication of the profinet switches cascade connection can available these two communication ports. As is shown above, the two CBT-1060s are finally connected to the PROFINET host system by the cascade connection. Functionally, the two Ethernet communication ports are the same, and there is no distinction between primary and secondary.

（6）Instruction of mode indicator status

a) BF bus error flashes indicator, but normal communication isn’t light.
b) RDY normal is green and always on.
c) SF system error orange indication, but normal isn’t light .
d) Maintenance instructions, normal operation off.
e) D0 COM1 correspondence indication,green flashes when there is correct correspondence, otherwise off.
f) D1 COM2 correspondence indication, green flashes when there is correct correspondence, otherwise off.

3、Basic configuration instruction

This product uses the standard GSDML file the same as other standard Profinet products. Before configuring the product, you need install the GSDML file. Take the TIA Portal as an example, after installed the GSDML file in the TIA Portal, you can find CBT-1060 in the hardware contents. Firstly, Right-clicking "Insert Object" on the bus. Secondly, clicking "Profinet IO".Finally, finding "CBT-1060" under the "IO" path. After clicking and dragging into the bus will appearance, As shown in figure(1) below.

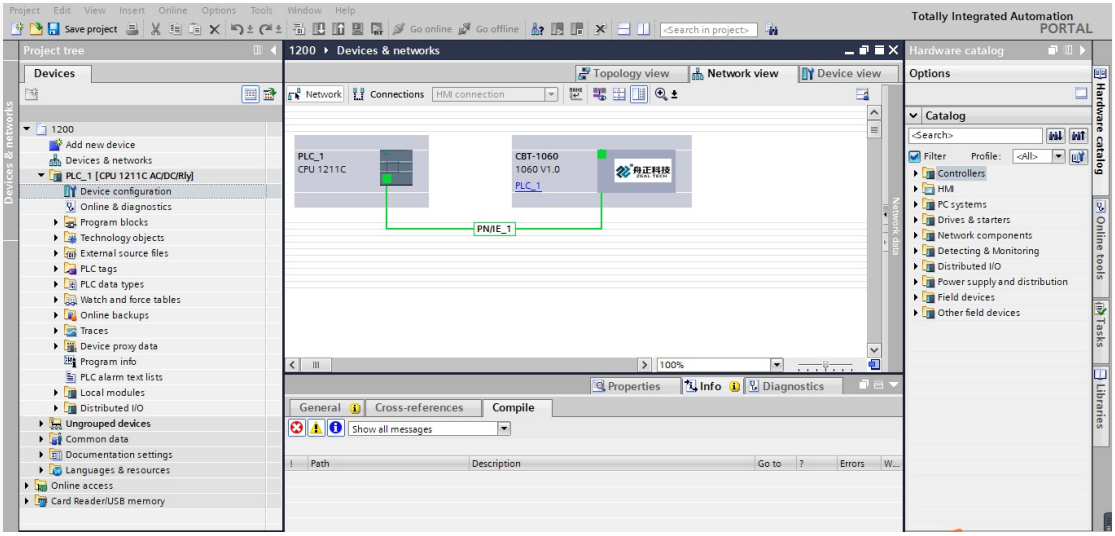


Figure 1.

Next, you need change the CBT-1060 hardware IP address and the configuration property IP address and PROFINET device name settings in this project. Of course, these two settings are not necessary. If the IP address PROFINET device name is known and the IP address and the network segment where the PLC is located If there is no contradiction, there is no need to modify. As shown in figure (2) below.

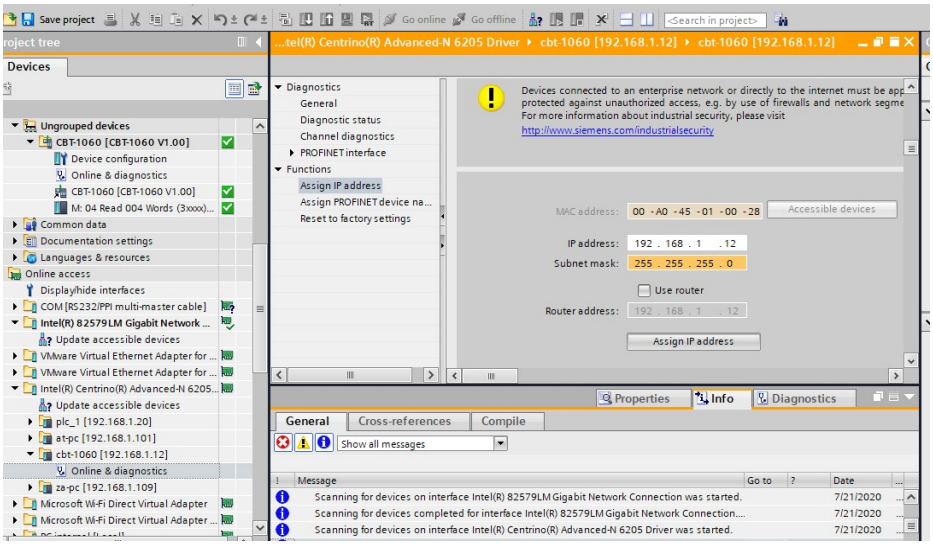


Figure 2.

You need use the online and diagnostic functions to view or modify the hardware IP address and device name here. If you change the IP address into 192.168.1.13 in Figure(2) and you need to change the PROFINET device name, the factory is empty. As shown changing to CBT-1060 in figure (3).

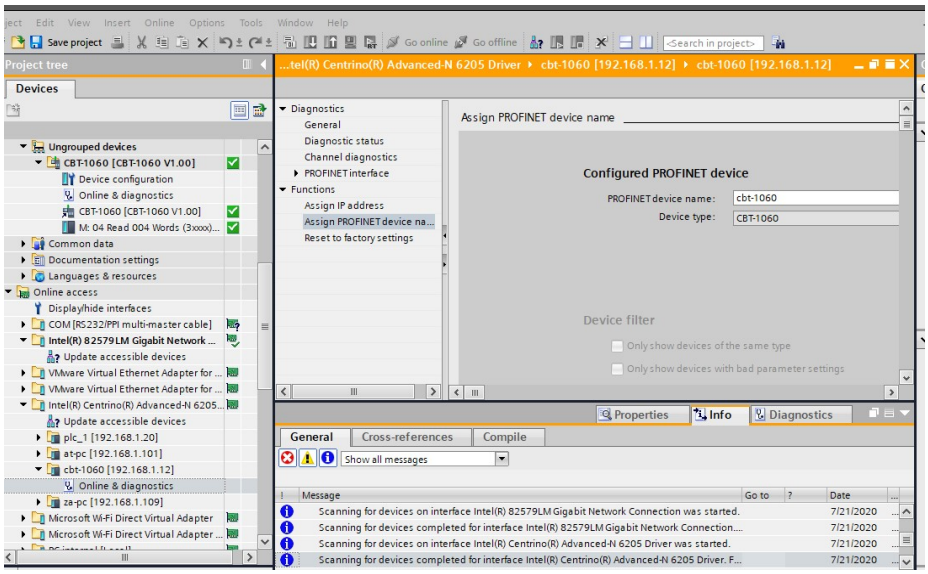


Figure 3.

When the profinet device IP and name are determined, you need return to the engineering configuration and set the IP address and device name in the setting project. As shown in figure (4) and figure (5).

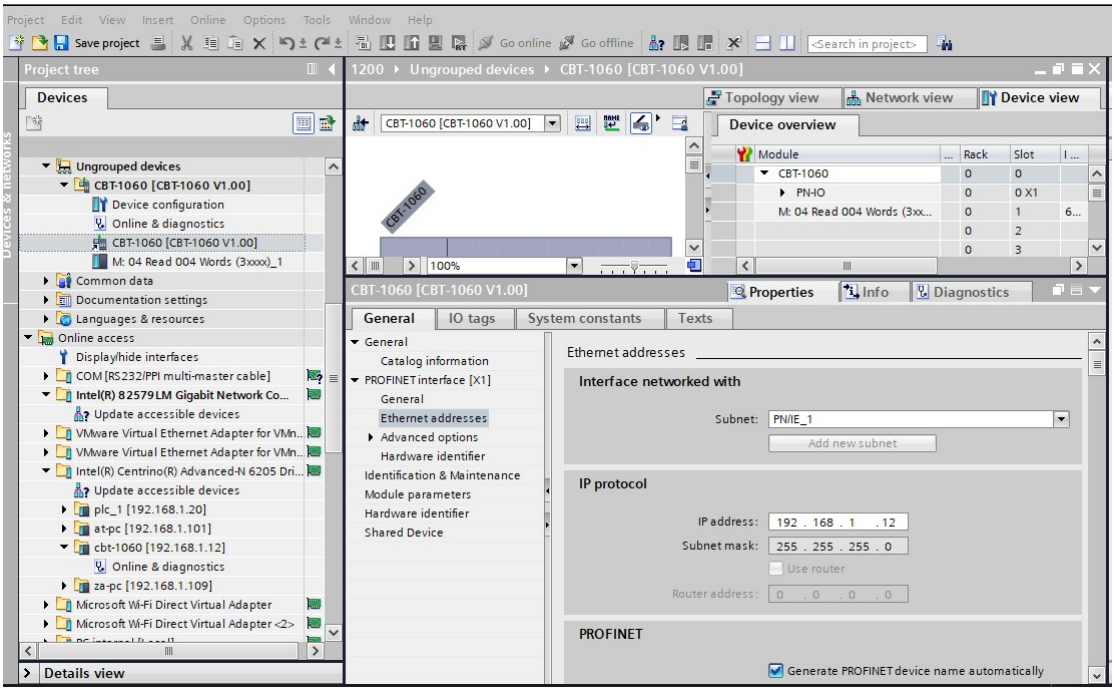


Figure 4.

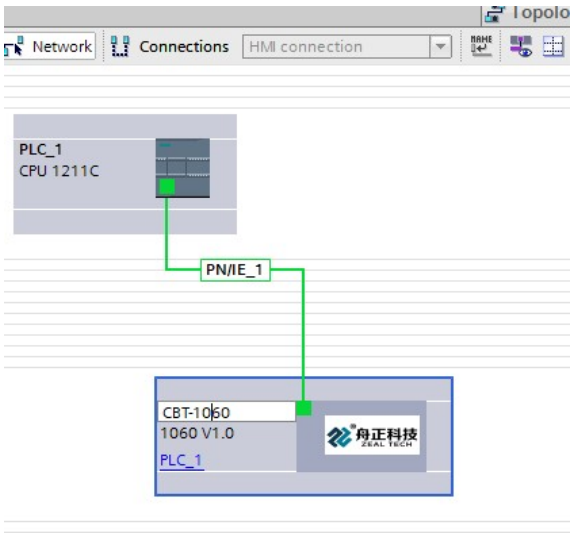


Figure 5.

So far, the Profinet configuration settings are completed. If you download to the PLC, Profinet communication can be established. The above steps are exactly the same as the other general Profinet slave product settings.

4、Building modbus communication

a) RS485 communication parameter settings

The CBT-1060 are clicked property settings, you will see the RS485 communication port parameters, which can set the RS485 port working mode, communication parameters and other parameters as shown in figure (6).

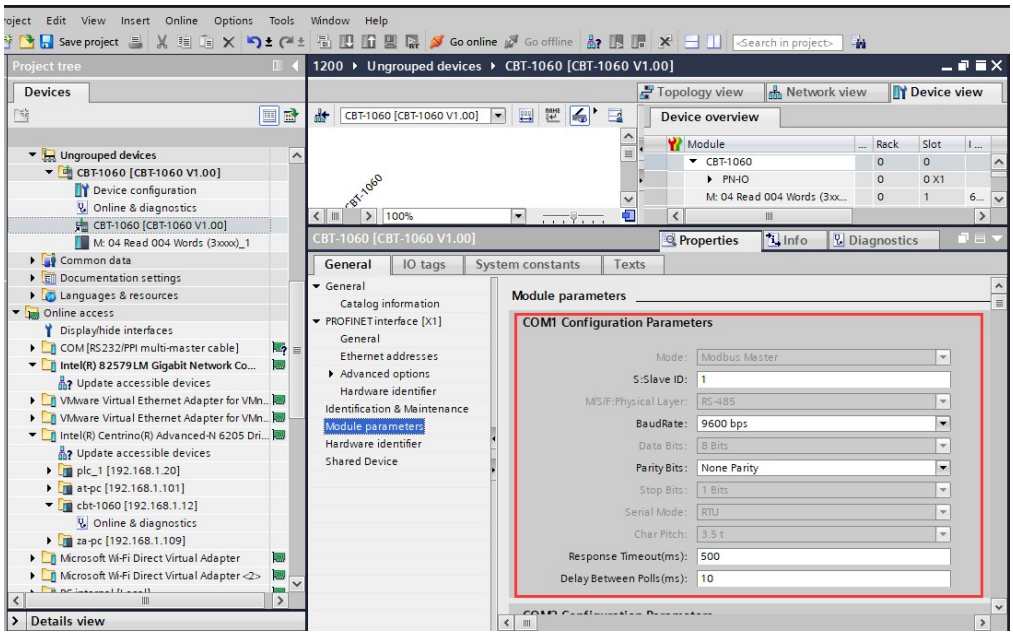


Figure 6.

b) Modbus RTU communication parameter settings

When the RS485 port of the CBT-1060 is connected to other MODBUS RTU slave devices, it can be inserted into the sub-slot of the CBT-1060 device by inserting submodule. For example, if we want to read the 8 register data from the 30257 register to the PLC with the 04 function code from the device at address 1, as shown in the following figure (7), you can find 04 Read 008 Word to the sub-slot 1 in the available MODBUS master module. Then, you can modify the parameters of the module of just inserted into the sub-slot in properties, and change the starting address to 256. Note here: all addresses in this module are setting up to offset addresses. For example, the standard notation of 30257 address is that the base address 30001 of data register offsets 256, also known as address 257-1, because the highest bit 3 of the general MODBUS register address notation represents the address of zone 3. Here, the device register address notation method of different manufacturers will be different. Please check carefully!

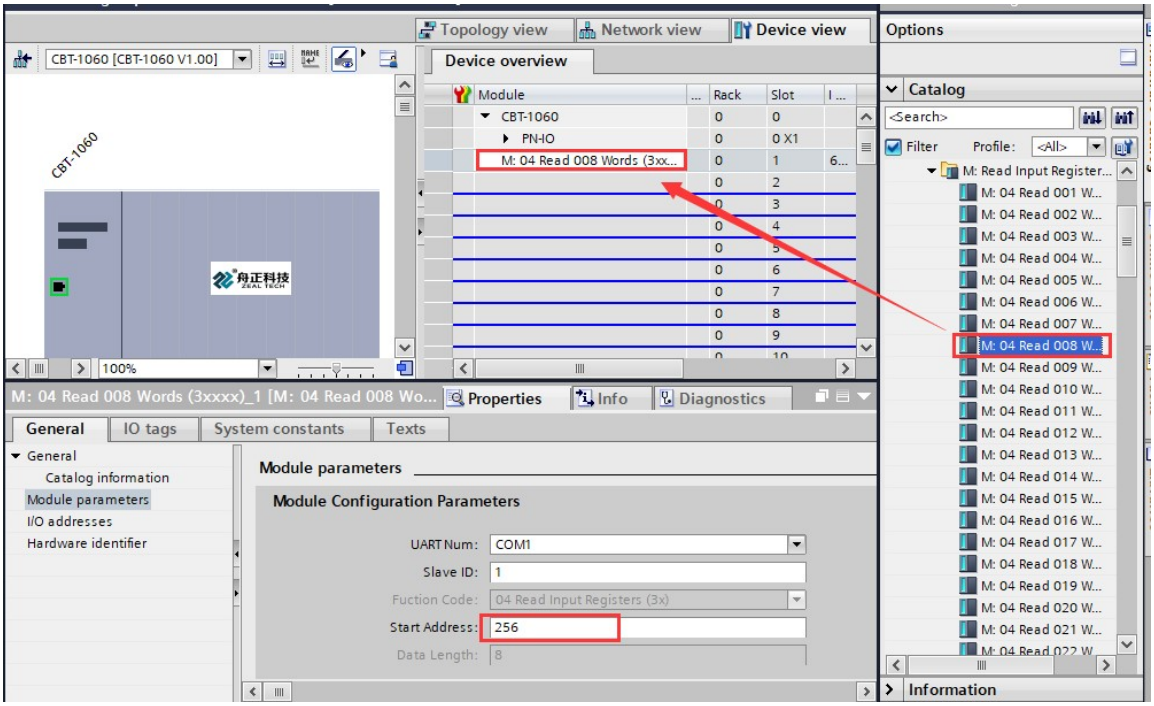


Figure 7.

The figure I address 0...15 means that this slot is allocated to 16 bytes of Profinet register address PIB0~PIB15 or 8 word registers PIW 0~PIW 14. At this time, you can and download the compile to the PLC, and connect the hardware. Then, you can monitor the PIW0~PIW14 registers in the monitoring table to see that the data of the MODBUS device has been read. As shown in figure (8)

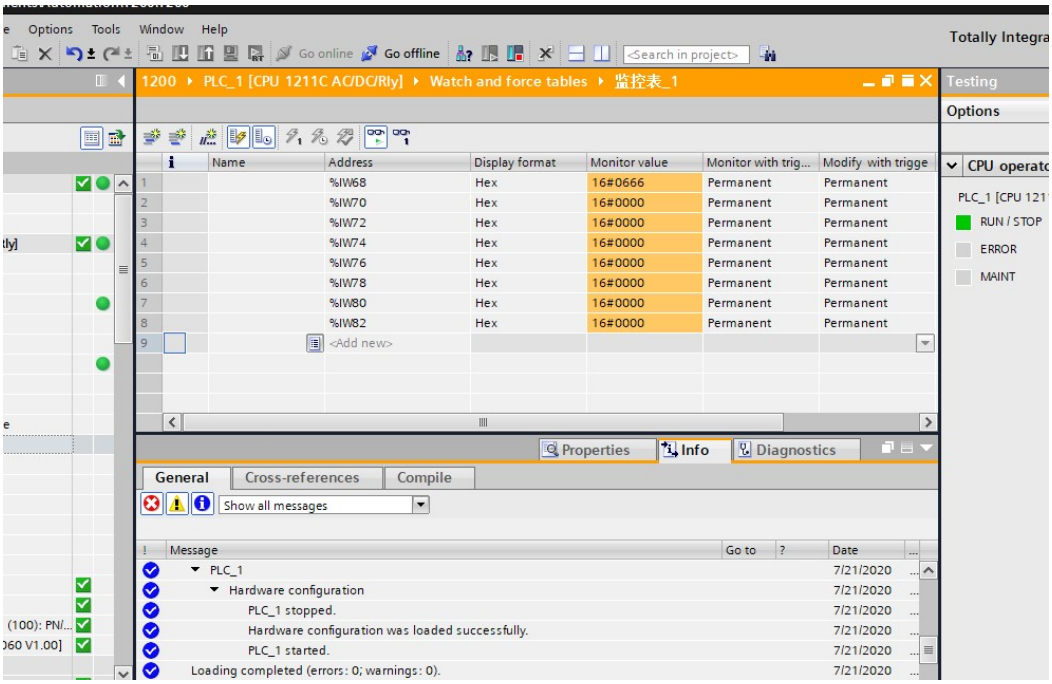


Figure 8.

Multiple modbus devices or multiple (species) MODBUS register addresses can be polled by inserting multiple submodules into different subslots. As shown in figure (9) below, the data of both devices can already be monitored.

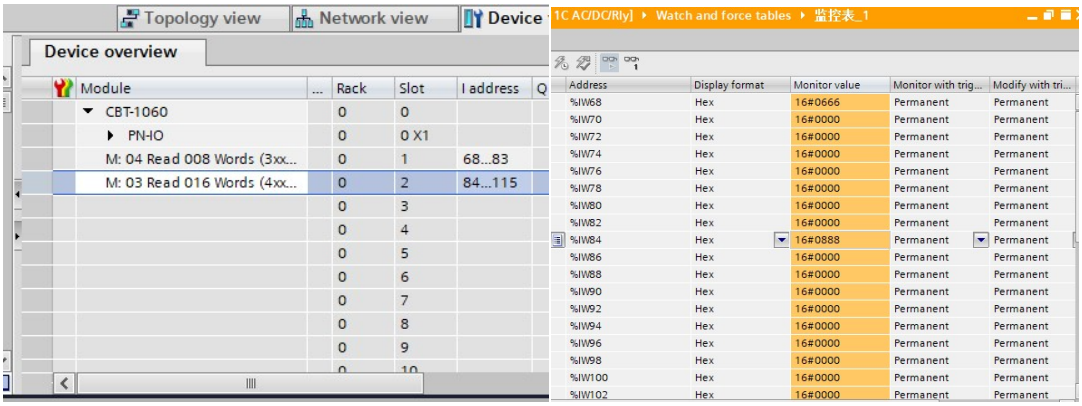


Figure 9.

This product apply to any standard PROFINET bus system, and the GSDML file also supports common TIA Portal、step7 and so on. This instruction uses the TIA Portal as an example.