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Author	Martin	Version	1.0.0	Date	2020/12/24	Page	1/2

Differences between I-87KN and RU-87PN/USB-87PN/ET-87PN settings ?

I-87KN and RU-87PN/USB-87PN/ET-87PN are all expansion I/O units with slots on them to provide I-87K I/O modules, but there are some differences in usage and settings, which will be sorted out below.

	I-87KN	RU-87PN	USB-87PN	ET-87PN
Support protocol	DCON	DCON	DCON	DCON
Communication interface	RS-485	RS-485	USB	Ethernet
Expansion unit connection	Can connect multiple sets	Can connect multiple sets	1 USB only connect one set	1 IP only connect one set
Auto configuration function	NO	YES	YES	YES
I-87K station number arrangement	Random	Determined by the CPU module	Determined by the CPU module	Determined by the CPU module
Support Addr. Mode	NO	YES	NO	NO

Note: The communication parameters of the I-87 modules on the RU-87PN/USB-87PN/ET-87PN slot are automatically set by CPU module and cannot be changed by software commands. For detailed operations of RU-87PN/USB-87PN/ET-87PN, please refer to the user manual.

RU-87PN user manual

https://www.icpdas.com/web/product/download/io_and_unit/unit_dcon/ru-87pn/document/manual/ru-87pn_user%20manual_en.pdf

USB-87PN user manual

https://www.icpdas.com/web/product/download/io_and_unit/unit_dcon/usb-87pn/document/manual/usb-87pn_user%20manual_en.pdf

Windows USB Driver

<https://www.icpdas.com/en/download/show.php?num=2974&model=USB-87P4-G>

Linux USB Driver

<https://www.icpdas.com/en/download/show.php?num=2818&model=USB-87P4-G>

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ET-87PN user manual

https://www.icpdas.com/web/product/download/io_and_unit/unit_dcon/et-87pn/docuement/manual/et-87pn_user%20manual_en.pdf

ET-87PN communication method

1. Ethernet communication uses TCP connection Port 9999
2. Use Virtual COM Port For Virtual COM Port, please refer to VxComm (Virtual COM) Driver/Utility website as follows

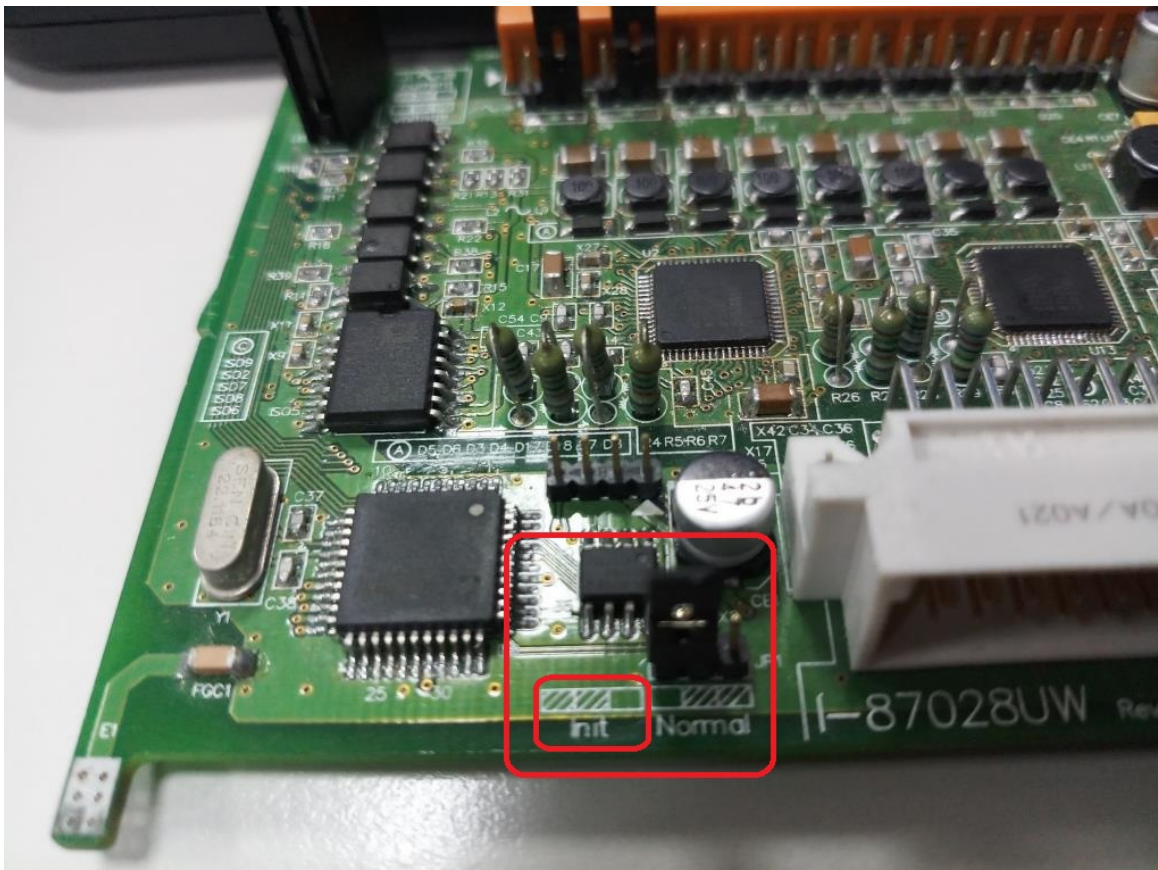
[https://www.icpdas.com/en/product/guide+Software+Utility+Driver+VxComm_\(Virtual_COM\)#662](https://www.icpdas.com/en/product/guide+Software+Utility+Driver+VxComm_(Virtual_COM)#662)

The following is a description of the expansion unit settings and usage methods of these I-87K I/O modules. °

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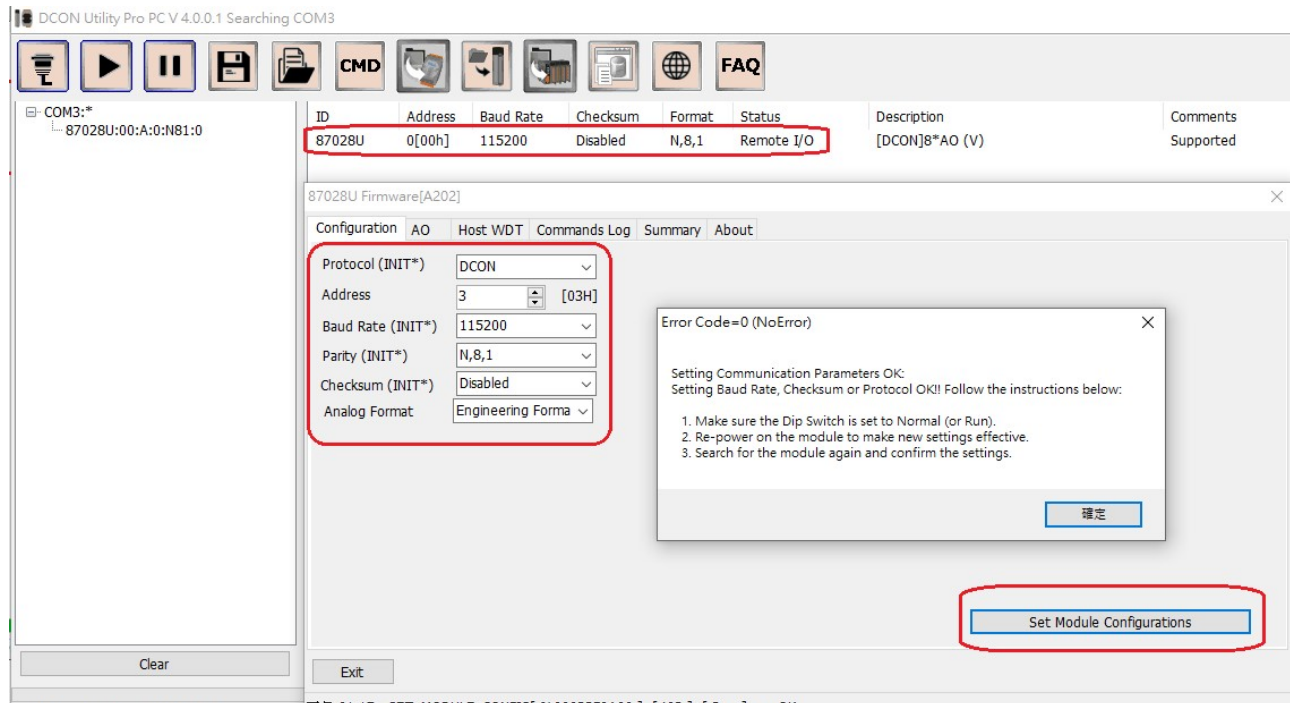
1. I-87K4 + I-87K I/O Setting method

Step 1: First, adjust the INIT* Jumper of a single I-87K module to the INIT position and insert it back into the I-87K4 Slot



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Step 2: Use DCON Utility Pro to search for modules, and complete the settings according to the communication parameters and usage items planned by the application.



Note 1: The factory default I-87K I/O factory default is station number 1, baud rate 115200, Checksum Disabled, parity check is N81, sometimes the module is from repair spare parts or other unused inventory in the field , Not necessarily the factory default value, so it is recommended to use the INIT module for setting. Remember to adjust the INIT Jumper back to the Normal position after setting

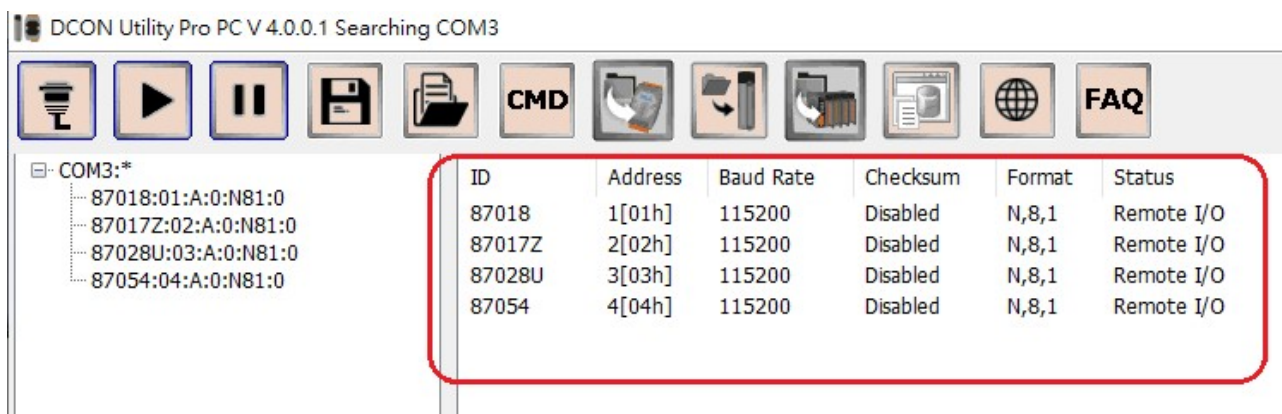
Note 2: Prevent the communication commands conflicting on the RS-485 network when the modules with the same communication parameters are plugged into the I-87KN, resulting in abnormal communication or the module cannot be found. It is recommended to finish setting up a module Then first remove and change to another module. After all the modules are set up, plug them back into the I-87KN and power on again.

Note 3: The station number of the I-87K module on the I-87KN is determined by its own setting, and has nothing to do with which slot it is inserted in. It is recommended to arrange them in order of station number to facilitate future maintenance and management.

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Step 3. Re-use DCON Utility Pro to search and the results will be as follows

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ID	Address	Baud Rate	Checksum	Format	Status
87018	1[01h]	115200	Disabled	N,8,1	Remote I/O
87017Z	2[02h]	115200	Disabled	N,8,1	Remote I/O
87028U	3[03h]	115200	Disabled	N,8,1	Remote I/O
87054	4[04h]	115200	Disabled	N,8,1	Remote I/O

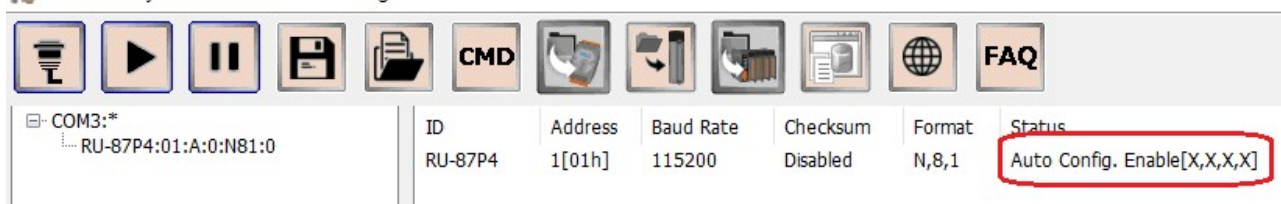
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2. RU-87PN + I-87K I/O Setting method

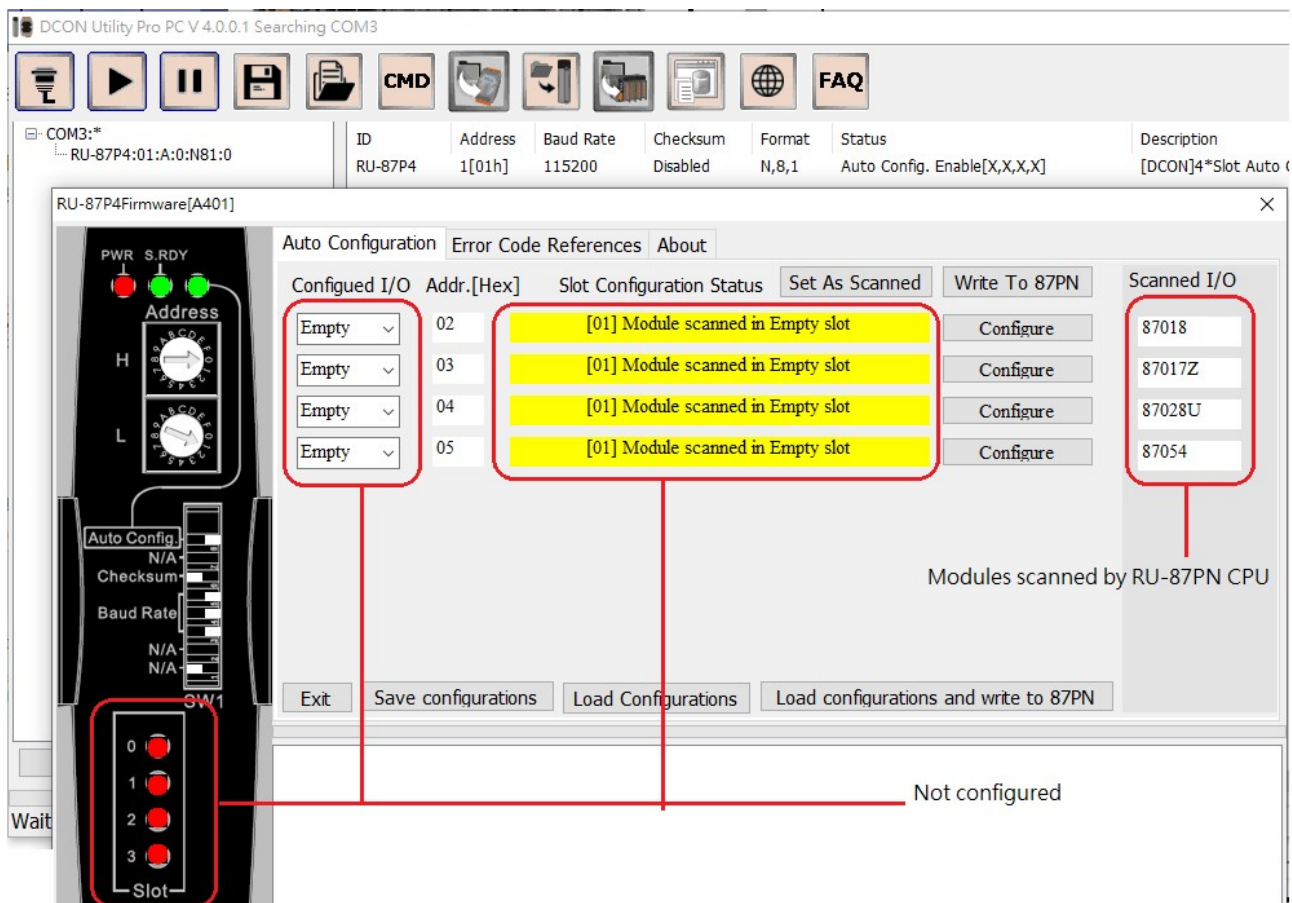
Step 1: Insert I-87K I/O into the slot of RU-87PN, and use DCON Utility Pro to search for RU-87PN.

When searching for the first time, only RU-87PN will be found. The "Status" position will show XXXX after the station number, which means that 4 modules have not been configured. It is not allowed to use it. I-87K I/O modules in each slot cannot communicate, and the Slot LED red light on the RU-87PN CPU module will also be constantly on.

DCON Utility Pro PC V 4.0.0.1 Searching COM3



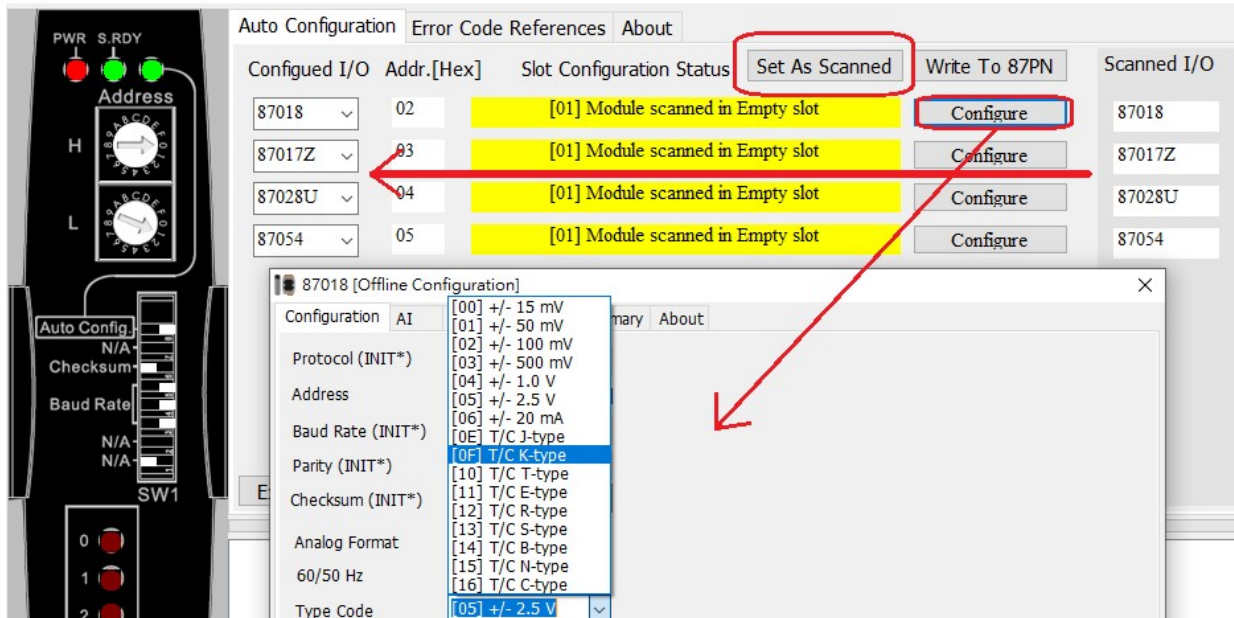
Step 2: Click RU-87PN ID, enter the setting screen, you will find the module found by RU-87PN on the right hand side, and the middle and left part of the display module has not been set.



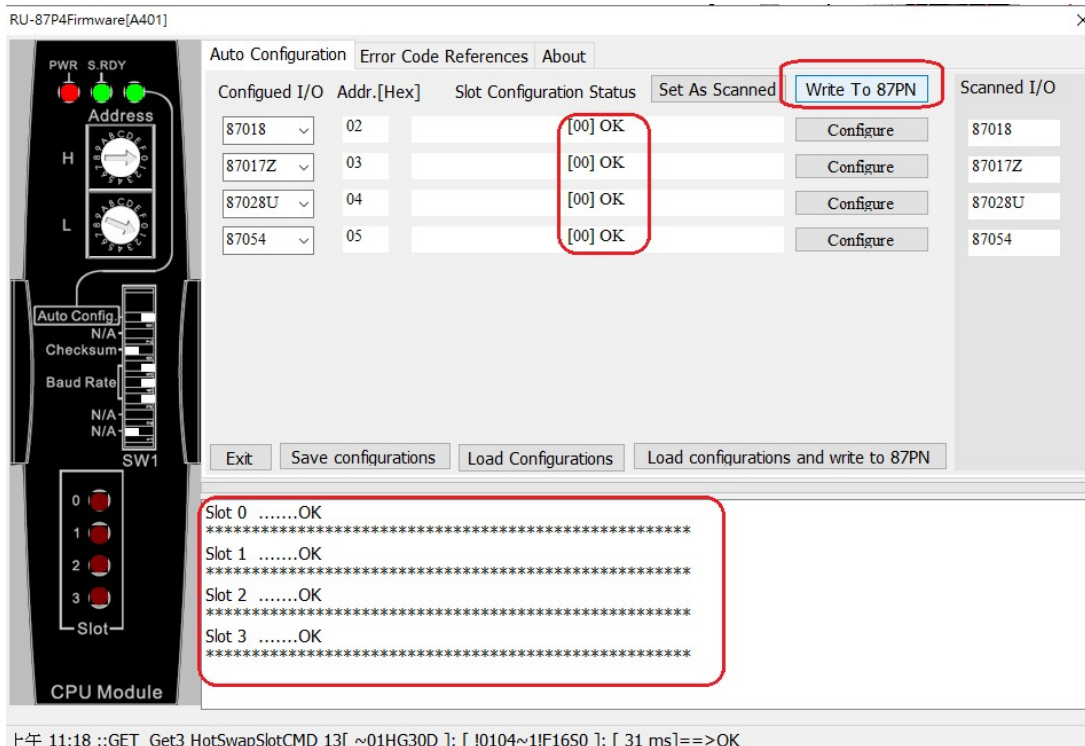
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"Set As Scanned" means to set according to the modules found by the CPU, and then press the "Configure" button to perform offline operations on the found modules one by one to set the desired items.

RU-87P4Firmware[A401]

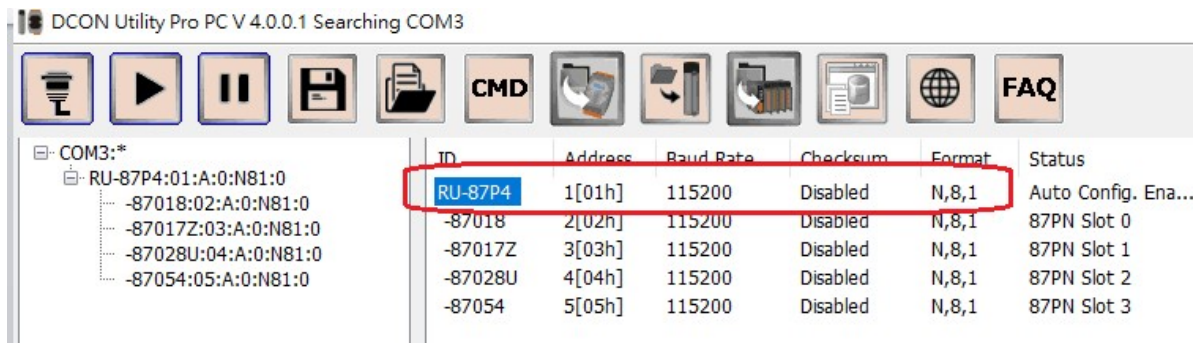


Step 3: After setting each module one by one, press "Write To 87PN" to write the planned settings into the memory device of RU-87PN. As long as the module is damaged and updated, the RU-87PN CPU will update the pre-written settings to the module to achieve the purpose of automatic setting.



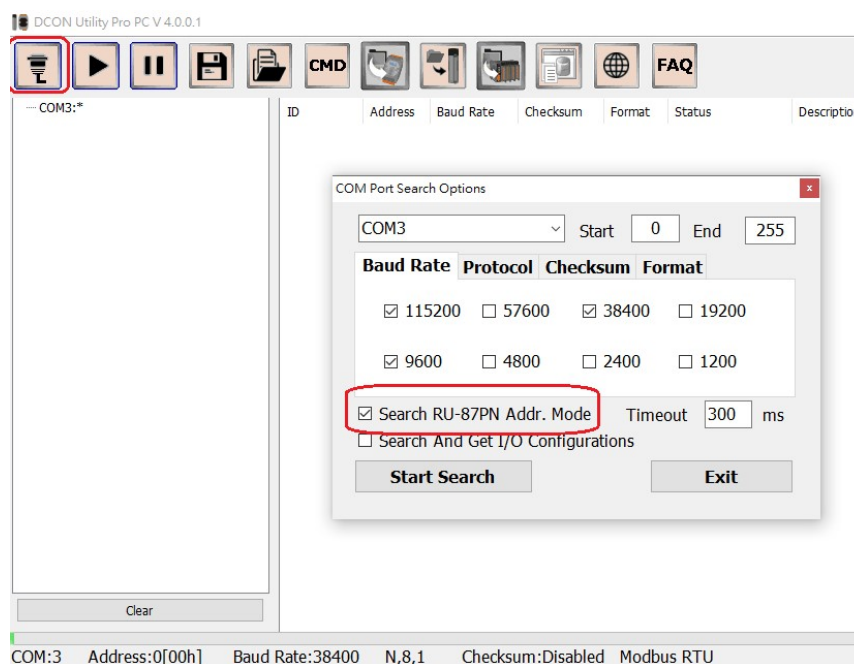
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Step 4: Close the RU-87PN setting screen, and search again, and you will find other I-87K modules besides RU-87PN. "Status" displays [0000], indicating that the I-87K has been set up and can communicate.



RU-87PN will occupy a communication address. The default shipping setting is station number 1. Other I-87K module station numbers are arranged in order according to the slot position. If there are two sets of RU-87PN filled with I-87K modules, the search results will be 2, 3, 4, 5 7, 8, 9, 10 in order, which is different from the usual habits.

If you want the I-87K module communication address on the slot to be arranged like 1, 2, 3, 4 5, 6, 7, 8, you can switch the Addr.Mode switch on the DIP switch to the ON address. Can achieve the goal. Please remember to tick "Search RU-87PN Addr. Mode" in the search option to find the CPU module successfully. Please refer to DCON_02_007_How to upgrade from I-87KN to RU-87PN FAQ.



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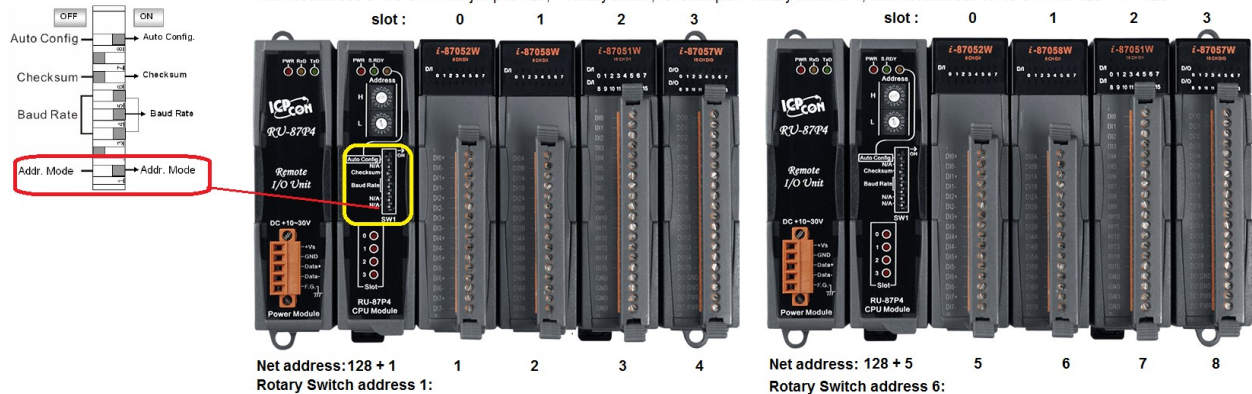
COM3:*	ID	Address	Baud Rate	Checksum	Format	Status	
RU-87P4:81:A:0:N81:0	RU-87P4	129[81h]	115200	Disabled	N,8,1	Auto Config. Ena...	
87018:01:A:0:N81:0	87018	1[01h]	115200	Disabled	N,8,1	Remote I/O	
87017Z:02:A:0:N81:0	87017Z	2[02h]	115200	Disabled	N,8,1	Remote I/O	
87028U:03:A:0:N81:0	87028U	3[03h]	115200	Disabled	N,8,1	Remote I/O	
87054:04:A:0:N81:0	87054	4[04h]	115200	Disabled	N,8,1	Remote I/O	

Addr. Mode ON :

Make net address of slot I/O on multi sets of RU-87PN be continuous.

As following two sets, the I/O network addresses are arranged as (1,2,3,4,5,6,7,8) ,then the I/O address mappings are the same as I-87KN I/O extension unit.

The net address of RU-87PN will jump to 128, + Rotary switch, for example if Rotary switch is 1, then net address of RU-87PN is 128 + 1 = 129



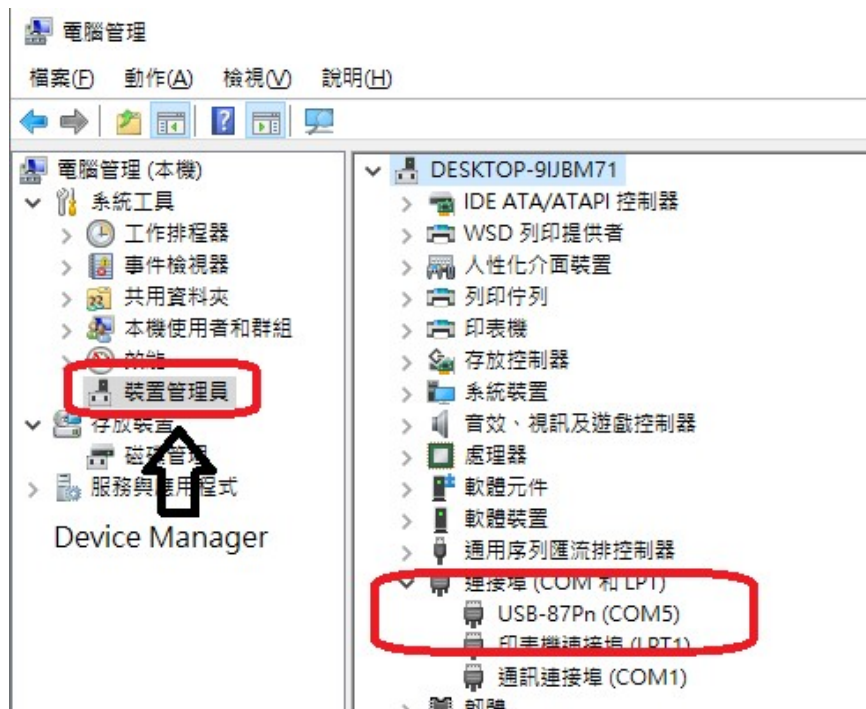
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3. USB-87PN + I-87K I/O Setting method

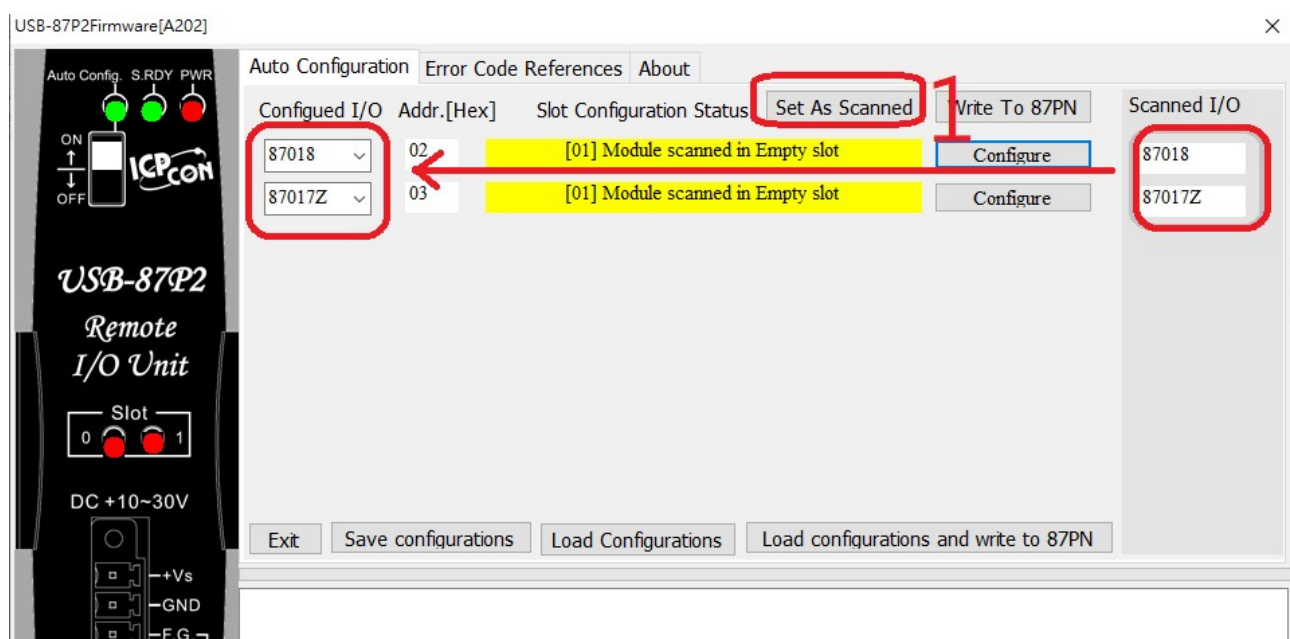
Step 1: Download and install the USB Driver, the download path is as follows

<https://www.icpdas.com/en/download/show.php?num=2974&model=USB-87P4-G>

After installing the USB Driver, please make sure that the USB-87Pn (COMn) name can be seen in the device manager's port before it can be used.

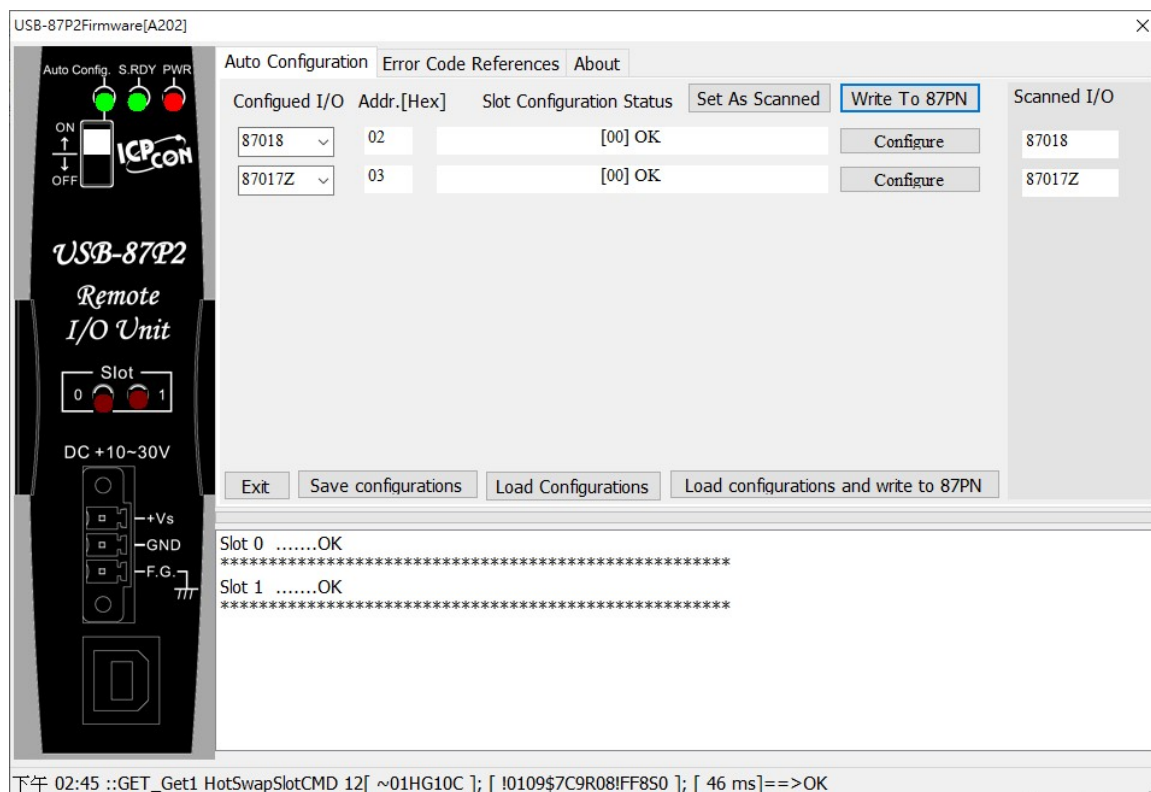
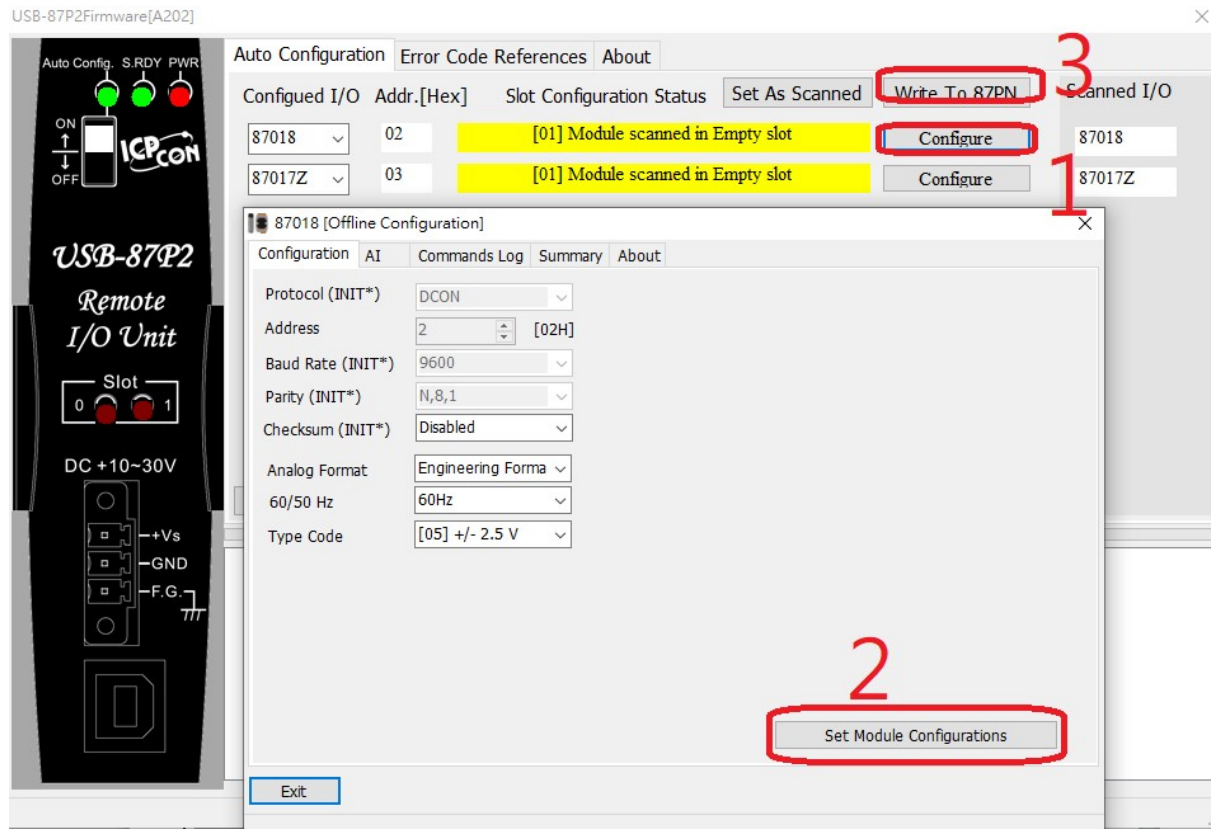


Step 2: Open DCON Utility Pro to search for USB-87PN, click USB-87PN first "Set As Scanned".



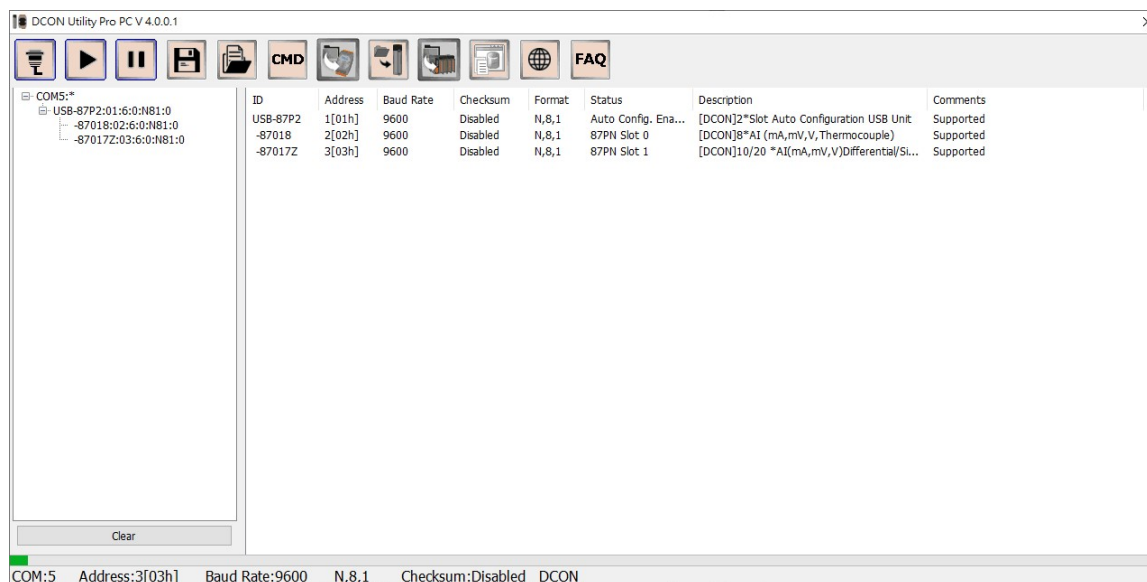
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Step 3: After setting each slot module offline one by one, press "Write To 87PN" to complete the setting.



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Step 4: Close the USB-87PN setting screen and search again to find all modules that have been set.



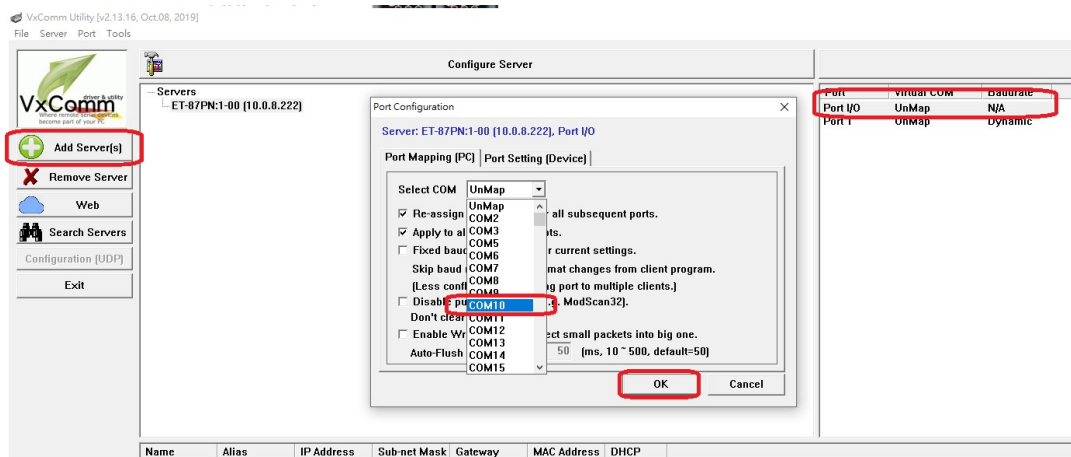
Note 1: A COM Port created by a USB-87PN can only support one set of USB-87PN. If there are more than 2 sets, other USB ports must be reused to establish a new COM Port connection.

Note 2: The station number of USB-87PN is fixed at 1, and the station numbers of the above I-87K modules are arranged in sequence starting from 2 in the order of Slot.

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4. ET-87PN + I-87K I/O Setting method

Step 1: Determine the Ethernet IP address of ET-87PN, execute VxComm Utility to specify the Virtual COM Port to be used.

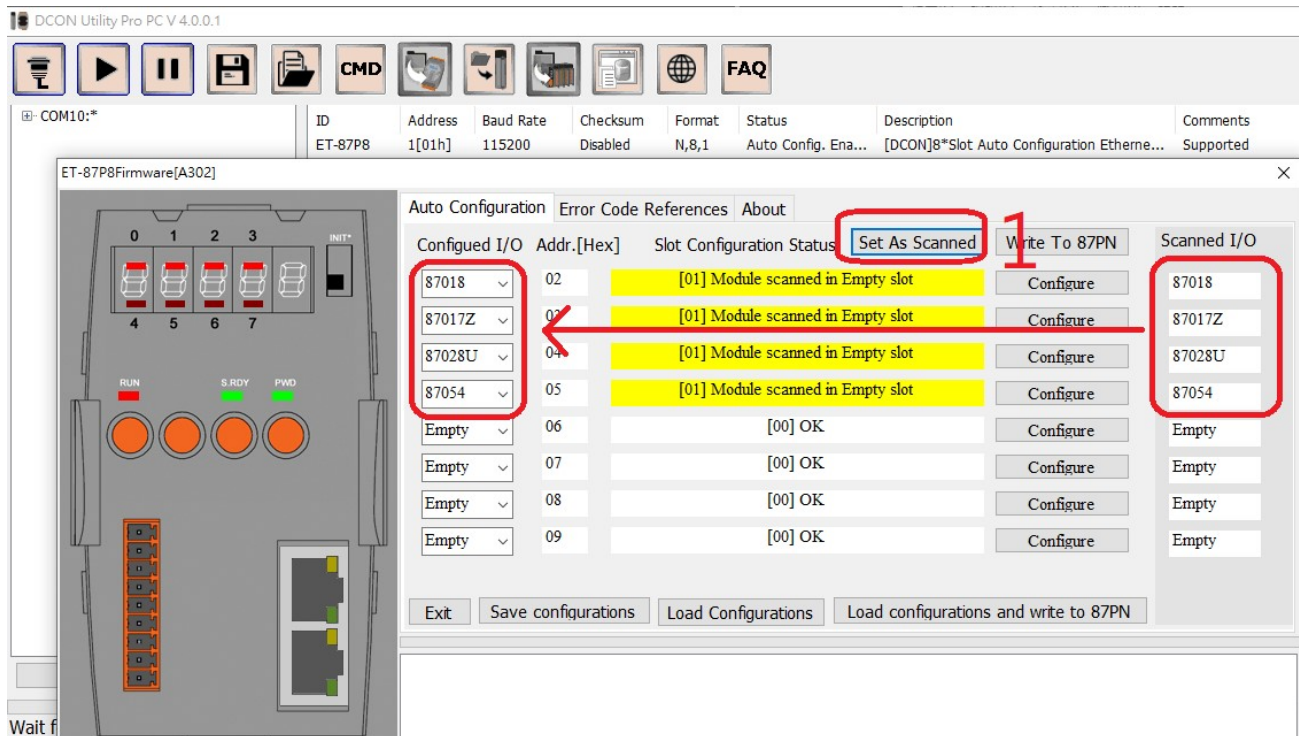


Step 2: After specifying the Virtual COM Port, remember to “Restart the Virtual COM Driver” so that the COM Port can be used.

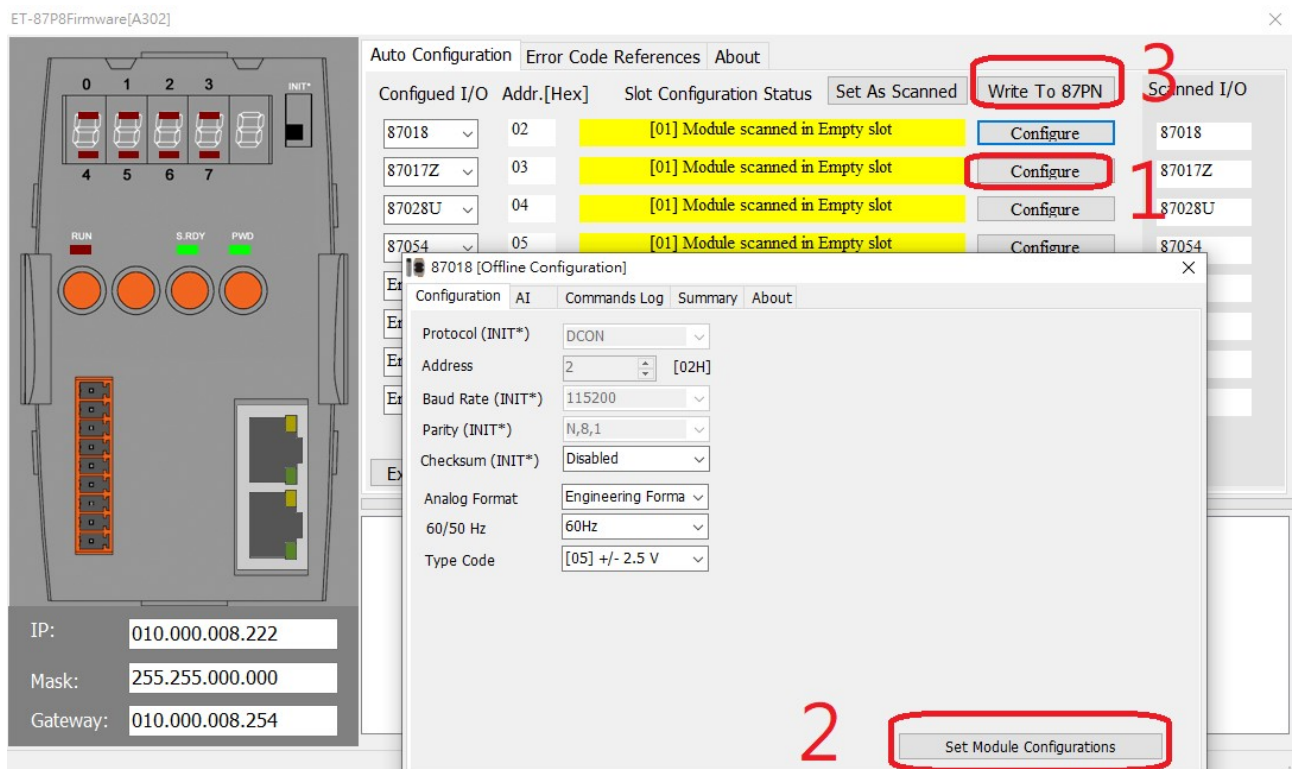


步驟三、開啟 DCON Utility Pro 搜尋到 ET-87PN，點選 ET-87PN 先” Set As Scanned”

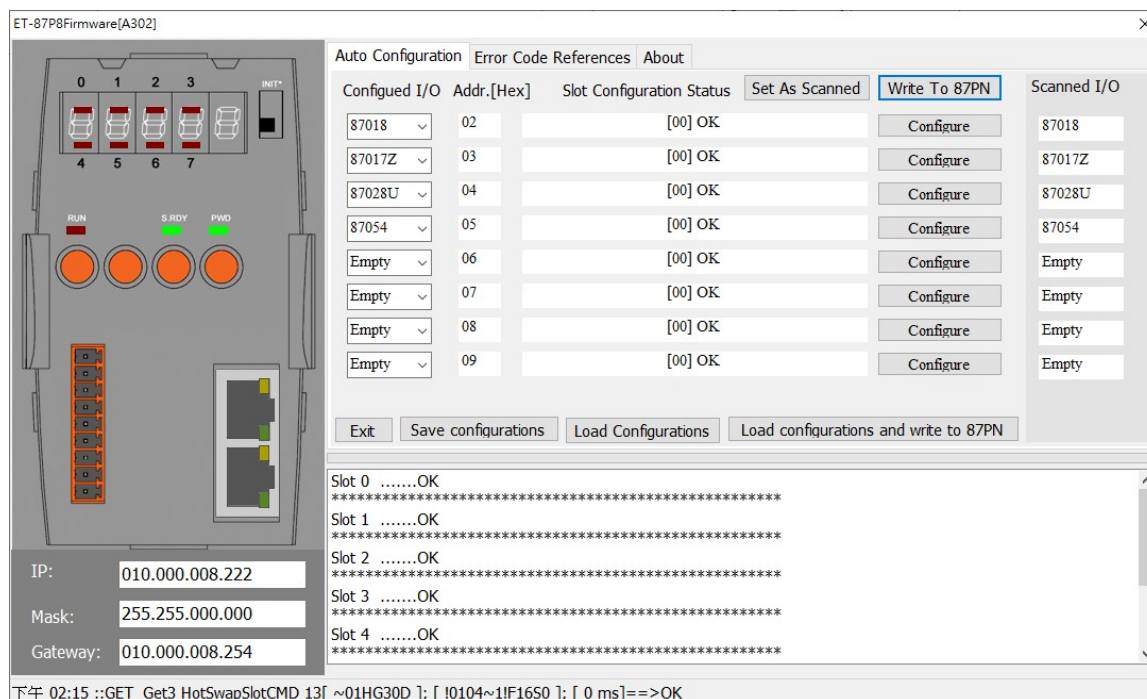
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Step 4: After setting each slot module offline one by one, press "Write To 87PN" to complete the setting.

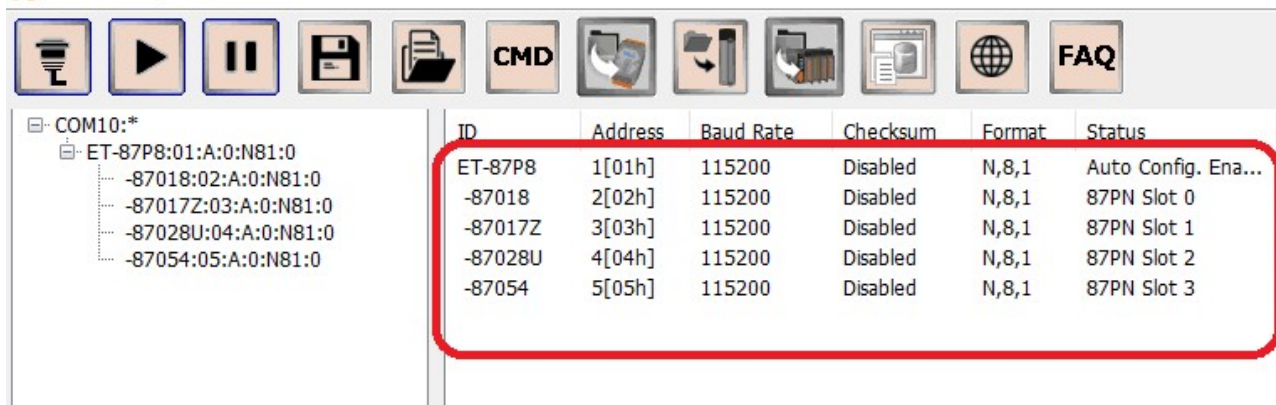


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Step 5: Close the ET-87PN setting screen and search again to find all the modules that have been set.

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Note 1: One Virtual COM Port can only support one set of ET-87PN. If there are more than 2 groups, a new Virtual COM Port must be reconfigured to establish a new connection.

Note 2: The station number of ET-87PN is fixed at 1, and the station numbers of the above I-87K modules are arranged in sequence starting from 2 according to the slot sequence.