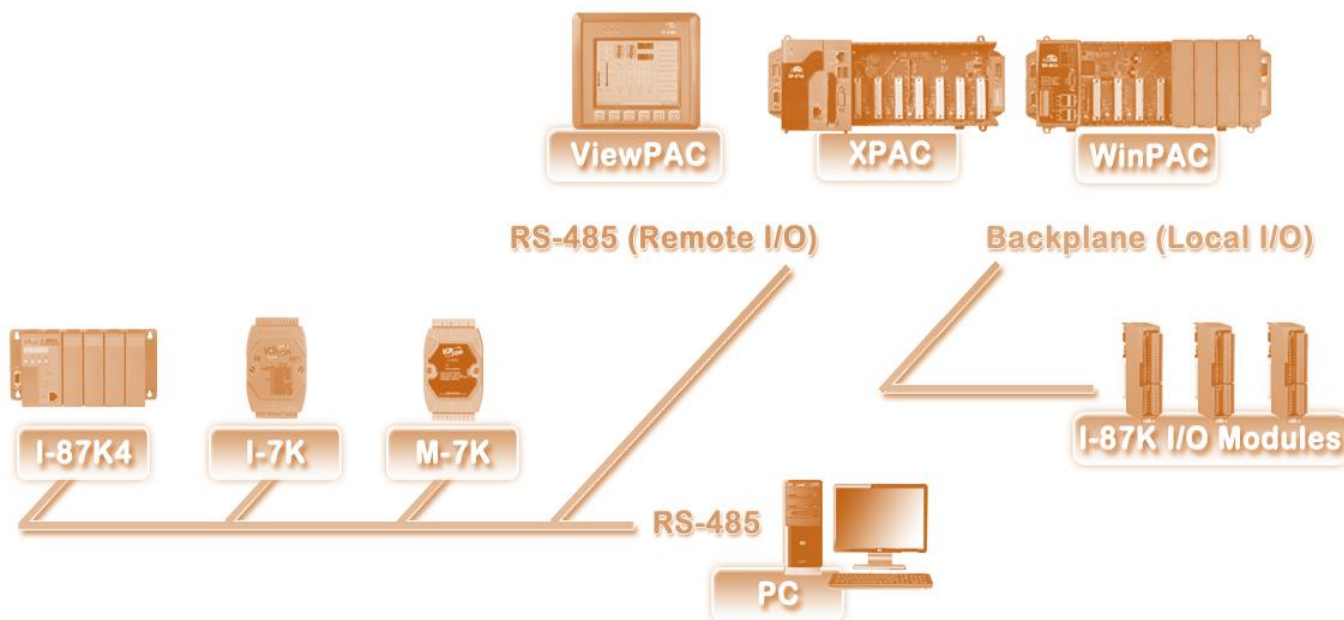




DCON Utility Pro User Manual

Version 2.0.1, February 2019



Written by Martin Hsu
Edited by Anna Huang

Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, beginning from the date of delivery to the original purchaser.

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Email: service@icpdas.com

Table of Contents

Table of Contents	3
1. Introduction	4
2. Quick Start	6
2.1. Power Supplier and wirings	6
2.2. Setup the Communication Interface.....	7
2.3. Run DCON Utility Pro	8
3. Quick configuration for Remote I/O modules	12
3.1. Quick Configuration for large amount modules	14
3.2. Save configurations to file and configure I/O by file	16
3.3. Restore the configurations by loading saved file.....	17
4. Configure and test I-8K and I-87K modules on I/O expansion slot for ICPDAS PAC	20
4.1. Load file step for Configuration and test modules on slot	24
4.2. Data Log function.....	29
4.3. Offline Configuration for 87Pn.....	31
4.4. Setup RS-485 interface	33
4.4.1. RS-485 interfaces	35
4.4.2. USB Interface	36
4.4.3. Ethernet interface but using VxComm Port as communication port	37
4.4.4. Zigbee interface	39
5. Configure Backplane Local Slot I/O modules.....	41
Appendix A. Trouble Shoot	43
Appendix B. Revision History	49

1. Introduction

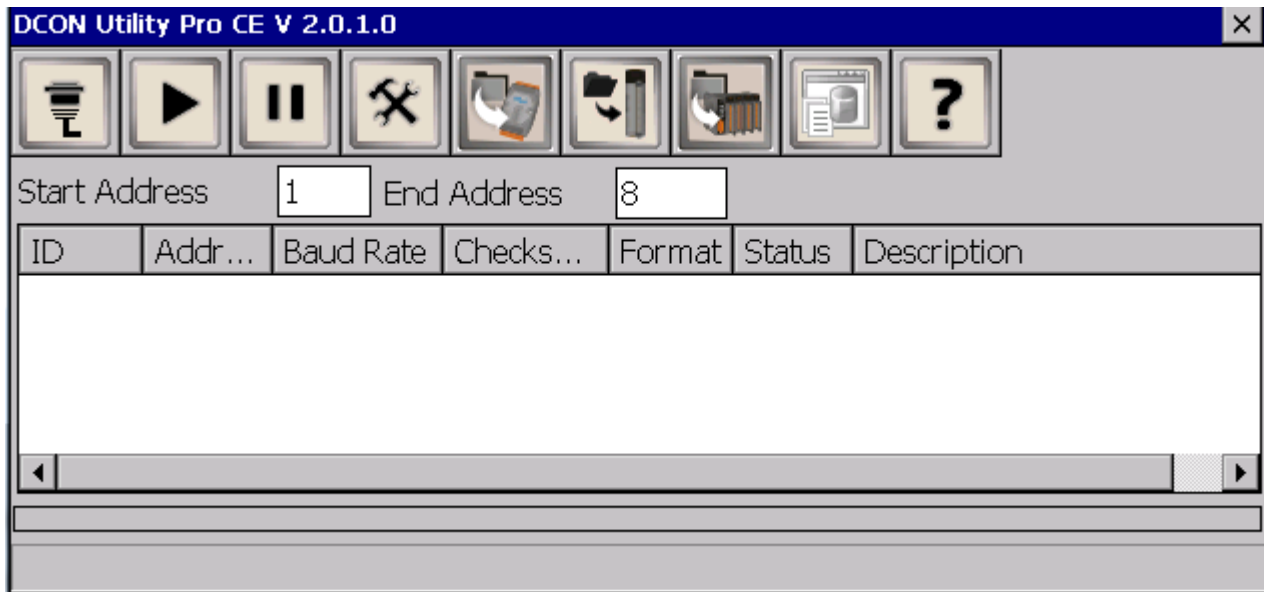
DCON Utility Pro is a toolkit that can help user easily to search, configure and test I/O modules.


For supported platforms, please refer to below table:


For Windows 98,NT,2000,XP,Vista,Win 7,Win 8 and Win 10 PC or Laptop
http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/
For ICPDAS CE5 platform PAC
http://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/micro_sd/dcon_utility_pro/
For ICPDAS CE6 platform PAC
http://ftp.icpdas.com.tw/pub/cd/xpac-atom-ce6/pc_tools/dcon_utility_pro/
For ICPDAS CE7 platform and ARM CPU PAC
http://ftp.icpdas.com.tw/pub/cd/winpac_am335x/wp-5231/system_disk/tools/dcon_utility_pro
For ICPDAS WES platform PAC
http://ftp.icpdas.com.tw/pub/cd/xpac-atom/tools/dcon_utility_pro/


Functions


DCON Utility Pro provides many useful functions for searching and configuring modules.





	COM port Configuration	Sets COM port number and the communication configuration.
---	------------------------	---


	Start Search	Starts to search the serial device(s) connected to the specified COM port.
---	--------------	--


	Stop Search	Stops the search process.
---	-------------	---------------------------


	Command Line	Sends a command to an addressed device and receives the response.
---	--------------	---

	Remote I/O Quick Configuration	Quick Configuration for one or multiple remote I/O devices.
---	--------------------------------	---

	Backup/Restore Configuration for Local I-87K	Backups/Restores Configurations for I-87K I/O modules in the WinCE/WES based PAC
---	--	--

	Offline Configuration for 87PN	Edits configuration files for RU-87Pn/USB-87Pn/ET-87Pn in offline mode.
---	--------------------------------	---

	Data Logger	Logs data of continuously sending commands and receiving response for monitoring modules status.
---	-------------	--

	About	Version information for related .dll files
---	-------	--

2. Quick Start

Before searching the I/O, make sure the I/O modules are correctly wired, the basic wiring includes power supplier and communicate interface.

2.1. Power Supplier and wirings



Please refer to: http://www.icpdas.com/products/Accessories/power_supply/power_list.htm

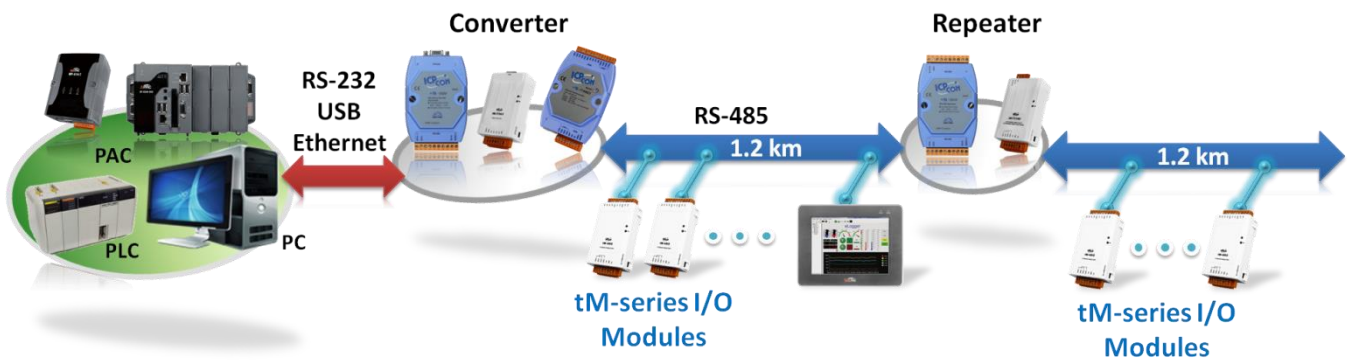
1. The power supply must be DC power between +10V to +30V.
2. Wiring: +Vs connects to +Vs; GND connects to GND.
3. Carefully calculate the total watts or current consumption of the system.

If the total watts were not enough, the system will become unstable and abnormal.

$$\text{Total watts} = \Sigma (\text{Supplied Voltage}) * (\text{Ampere consumed})$$

2.2. Setup the Communication Interface

DCON Utility Pro is very easy and convenient to configure and test the I/O modules via the serial port (RS-232/485) or virtual com port based-on Ethernet network.

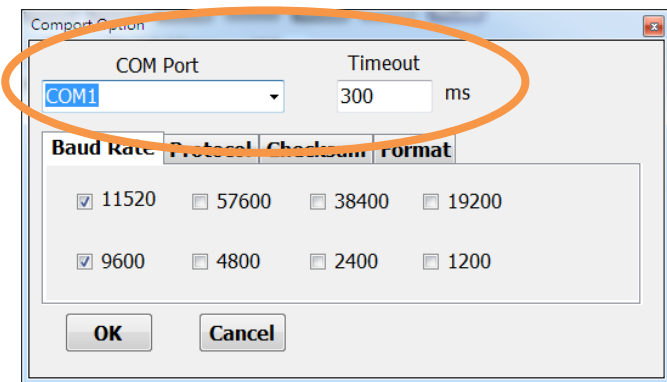


2.3. Run DCON Utility Pro

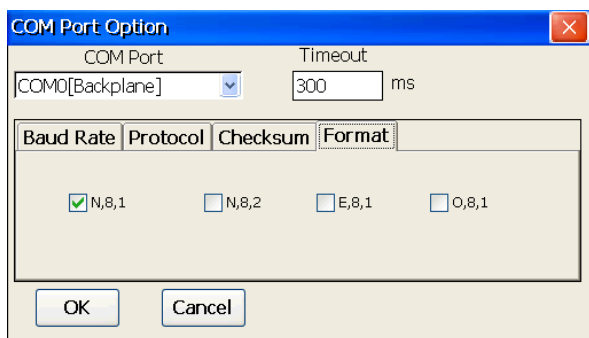
Step 1: COM Port Search Option:

Include COM Port list, Baud Rate, Protocol, Checksum, Format and Timeout options.

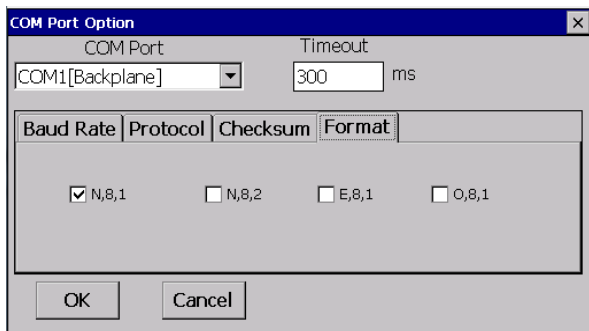
- i. Select searched COM Port and search options and define timeout value (default 300 ms)



The COM port for CE5/CE7 Controller is COM0



The COM port for CE6/XPE/WES Controller is COM1



ii. Baud Rate: default options are 115200 and 9600.

The screenshot shows a configuration panel with four tabs: Baud Rate, Protocol, Checksum, and Format. The 'Baud Rate' tab is selected and highlighted with an orange circle. Below the tabs, there are two rows of radio button options. The first row contains 115200 (checked), 57600, 38400, and 19200. The second row contains 9600 (checked), 4800, 2400, and 1200.

Baud Rate	Protocol	Checksum	Format
<input checked="" type="checkbox"/> 115200	<input type="checkbox"/> 57600	<input type="checkbox"/> 38400	<input type="checkbox"/> 19200
<input checked="" type="checkbox"/> 9600	<input type="checkbox"/> 4800	<input type="checkbox"/> 2400	<input type="checkbox"/> 1200

iii. Protocol: default options are DCON and Modbus RTU.

The screenshot shows a configuration panel with four tabs: Baud Rate, Protocol, Checksum, and Format. The 'Protocol' tab is selected and highlighted with an orange circle. Below the tabs, there are three radio button options: DCON (checked), Modbus RTU (checked), and Modbus ASCII (unchecked).

Baud Rate	Protocol	Checksum	Format
<input type="checkbox"/>	<input checked="" type="checkbox"/> DCON	<input checked="" type="checkbox"/> Modbus RTU	<input type="checkbox"/> Modbus ASCII

iv. Checksum: default option is "Disabled".

The screenshot shows a configuration panel with four tabs: Baud Rate, Protocol, Checksum, and Format. The 'Checksum' tab is selected and highlighted with an orange circle. Below the tabs, there are two radio button options: Checksum Disabled (checked) and Checksum Enabled (unchecked).

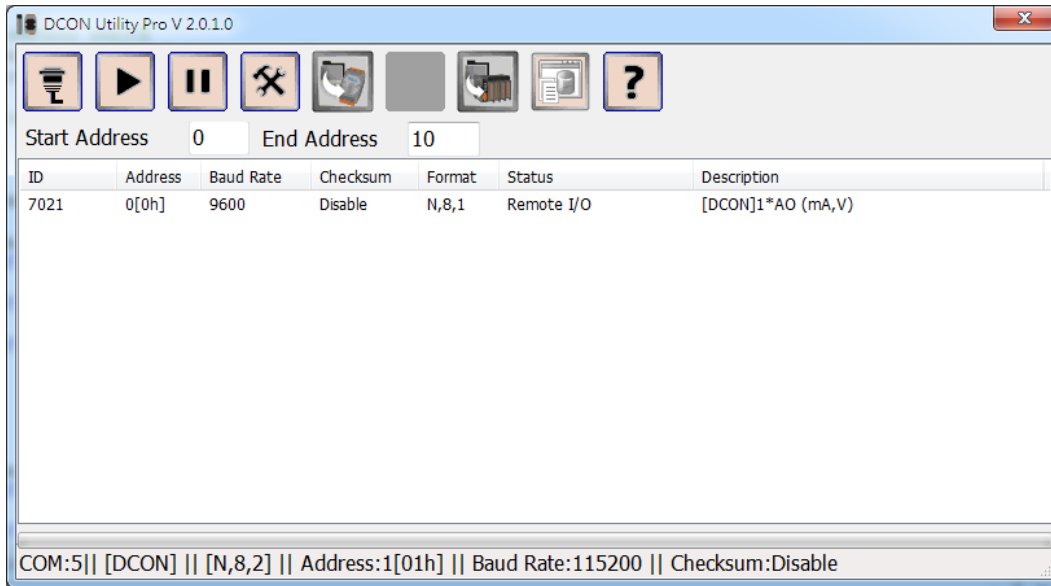
Baud Rate	Protocol	Checksum	Format
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Checksum Disabled	<input type="checkbox"/> Checksum Enabled

v. Format: default option is "N,8,1".

The screenshot shows a configuration panel with four tabs: Baud Rate, Protocol, Checksum, and Format. The 'Format' tab is selected and highlighted with an orange circle. Below the tabs, there are four radio button options: N,8,1 (checked), N,8,2, E,8,1, and O,8,1.

Baud Rate	Protocol	Checksum	Format
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> N,8,1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> N,8,2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> E,8,1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> O,8,1

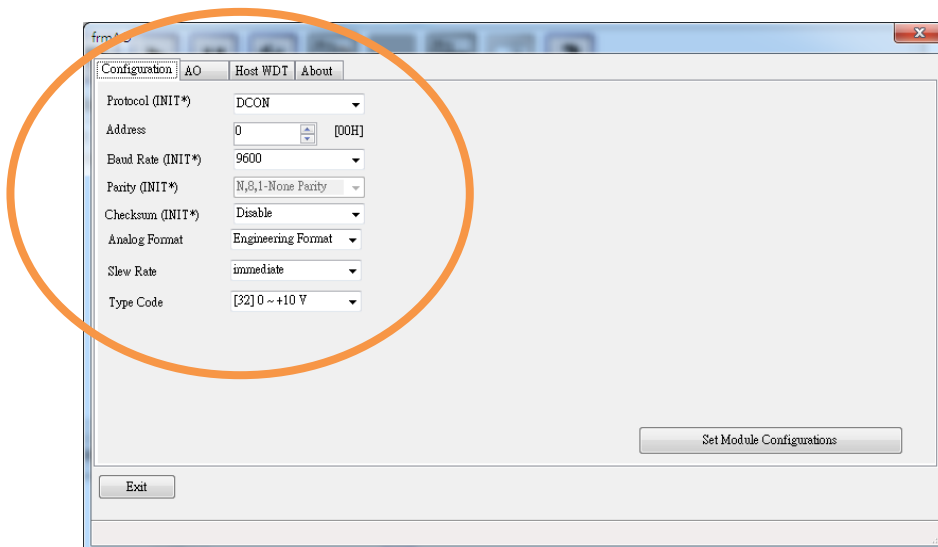
Step 2: Start Search () if found searched modules than Stop Search ()



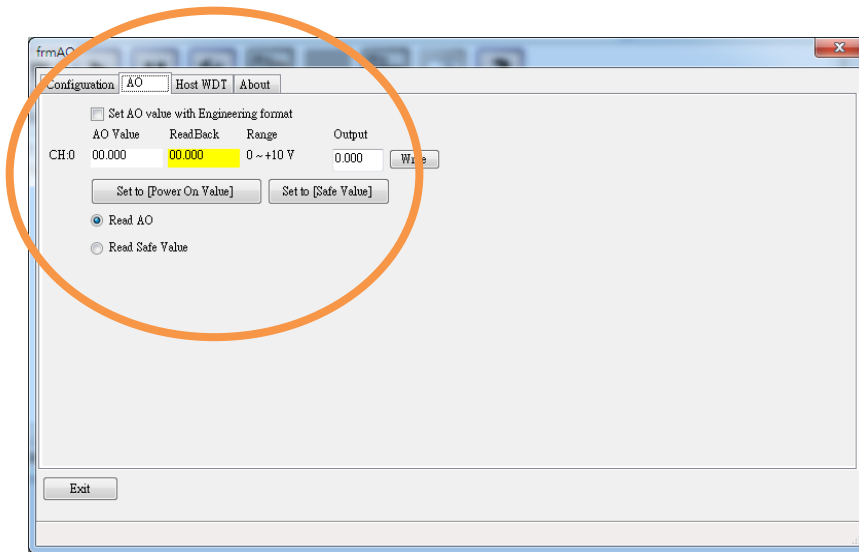
Step 3: Configure I/O settings and test the I/O value

For remote I/O modules, the main jobs are to change

- i. Set communication parameters for RS-485 network (net address, baud rate, checksum, parity) and communication protocol used.



- ii. Set type code range for analog modules
- iii. Set Power on value/Safe value for output modules



- iv. Check the I/O value for input and output modules

Tips & Warnings



1. If there are more than 2 modules with factory default settings, it needs to search and configure the I/O modules one by one.

In RS-485 network, you cannot connect two or more modules with the same communication parameters. It will cause some error due to conflicts of commands on RS-485 bus, like communication fault, or sometime running well and sometime not at all.

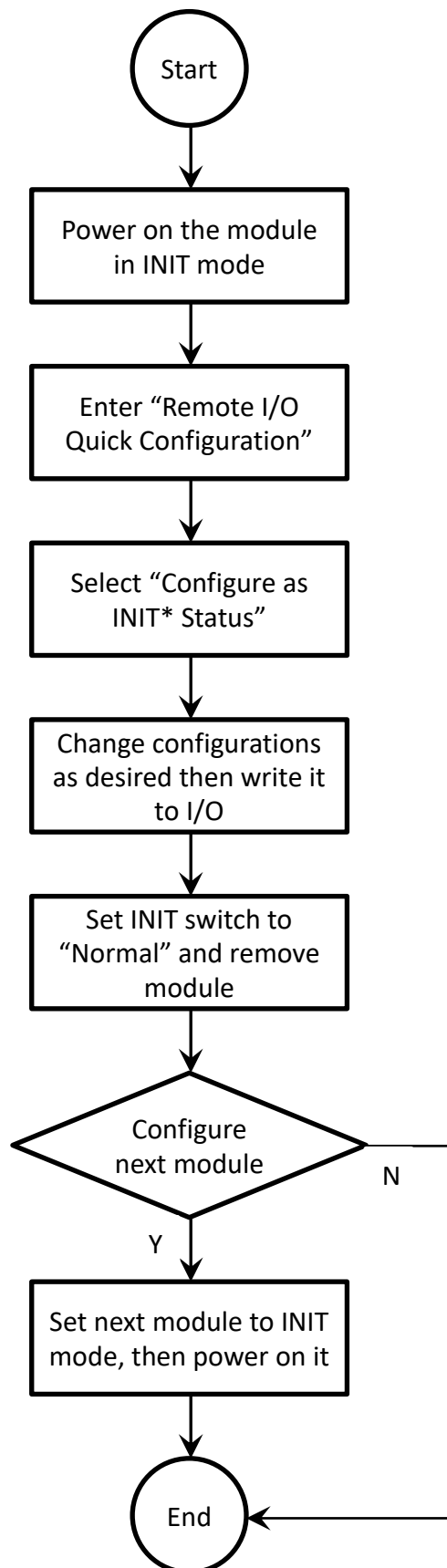
When all modules are configured with difference communication parameters, then user can use all of modules together.

2. If I/O module with unknown communication parameters, user can set it to Init Mode to fix communication parameter as below. Then user can find module out. When there are some modules to Init Mode, the communication settings are the same. By the same reason for chapter 2.3.1, they have to be searched and configured one by one.

It is better to Power on the I/O module with INIT* pin connects to the GND to get the I/O module's initial communication settings.

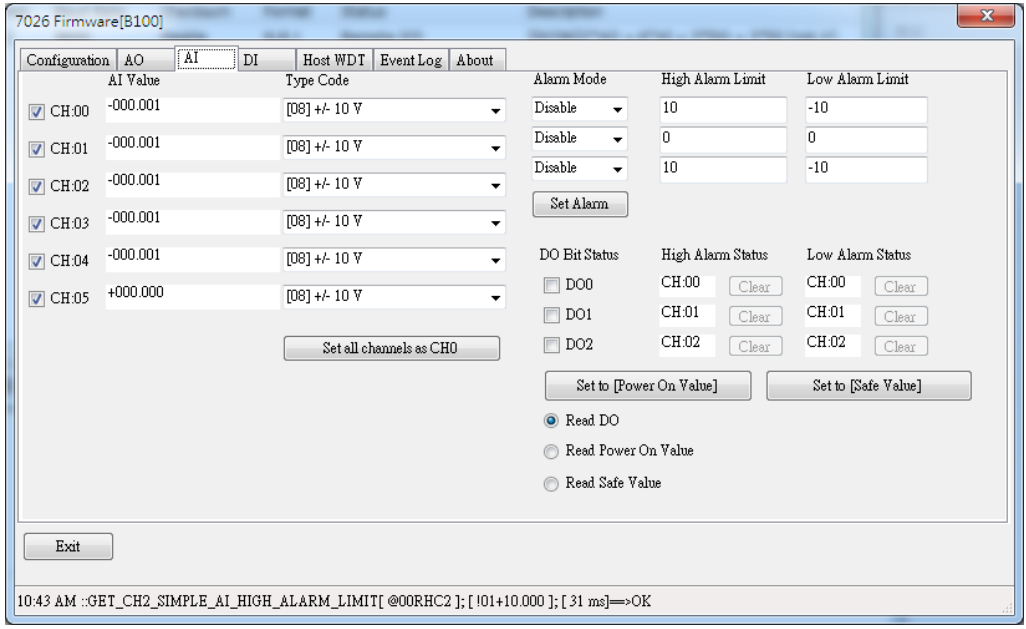
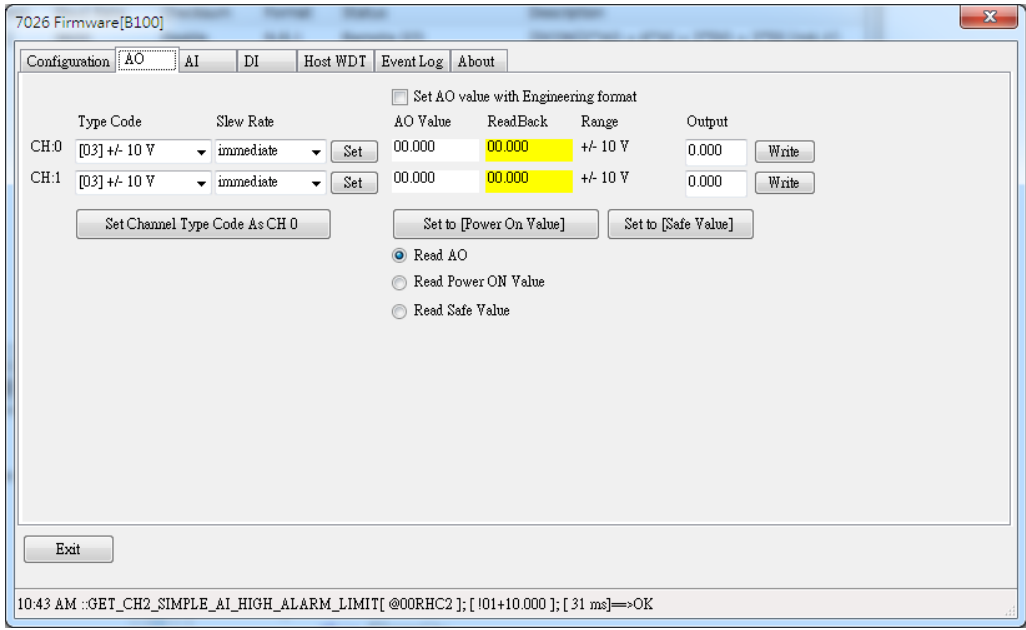
3. Quick configuration for Remote I/O modules

Support modules include all I-7K/M-7K and tM series I/O modules.



Here we take the M-7026 as an example; user may have to set the type code for AO and AI channels, power on value, safe value or alarm mapping.

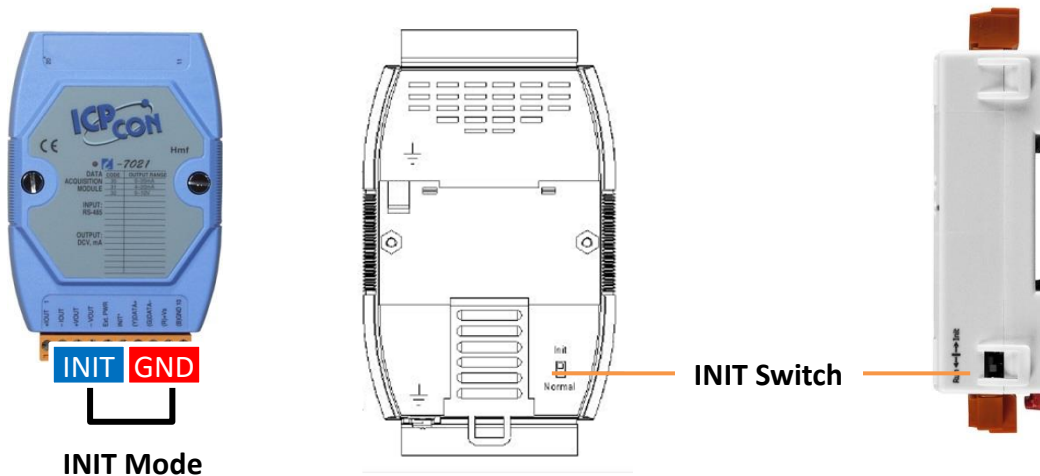
If there are multiple M-7026 devices that need to be configured with similar settings, it will waste much time to configuration modules again and again for every module. User can follow below steps to set the same configurations for larger amount modules.



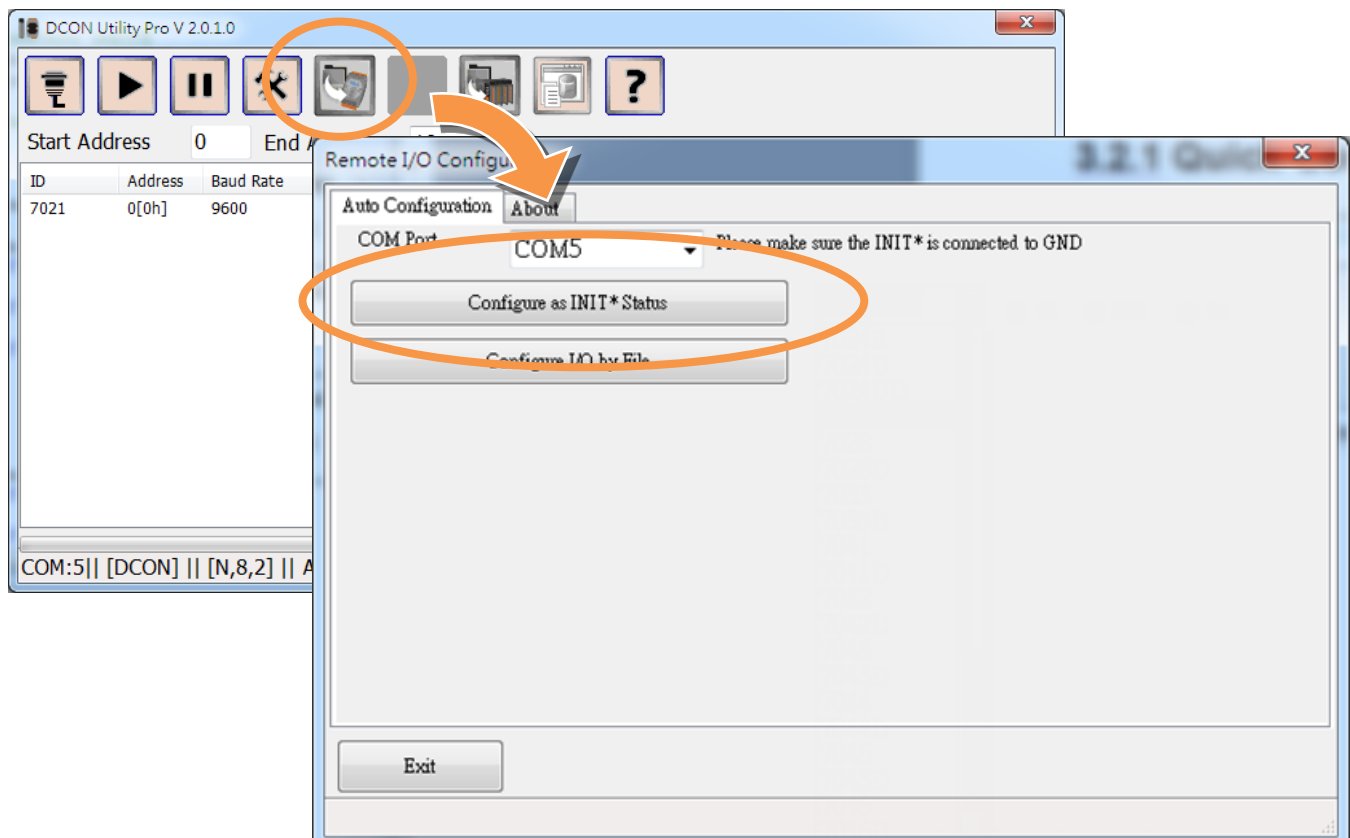
3.1. Quick Configuration for large amount modules

User may need to save I/O for backup configuration or need to save the same configuration for many models in different place. User can follow below step to save it to files once and write its configuration to the others modules.

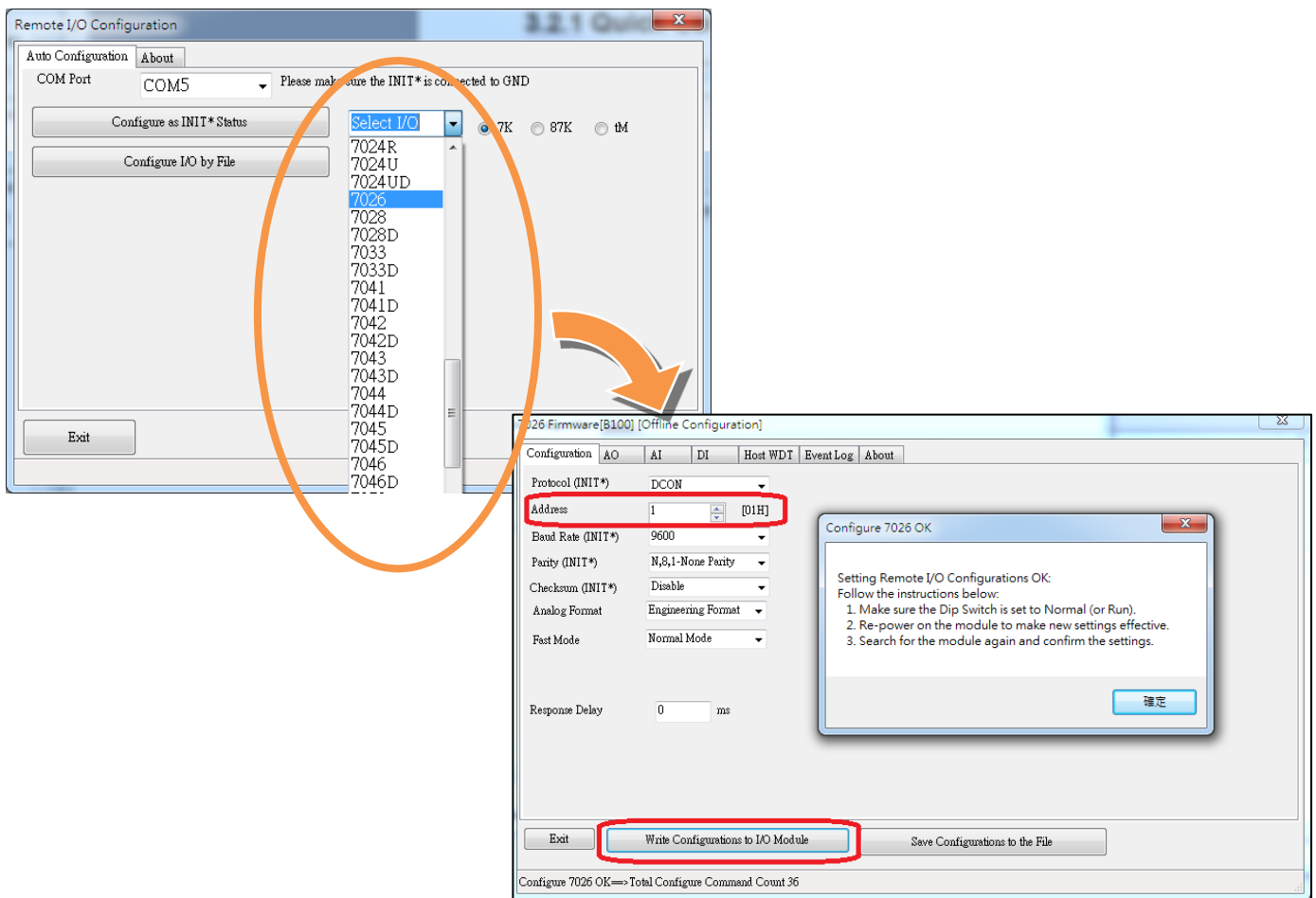
Step 1: Make sure the INIT switch set to "Init Mode" side, then power on the module



Step 2: Click "Remote I/O quick configuration" (), then click the button "Configure as INIT* Status"



Step 3: Select I/O to find to load the configuration form, change the settings then click "Write Configurations to I/O Module" to make the change affected

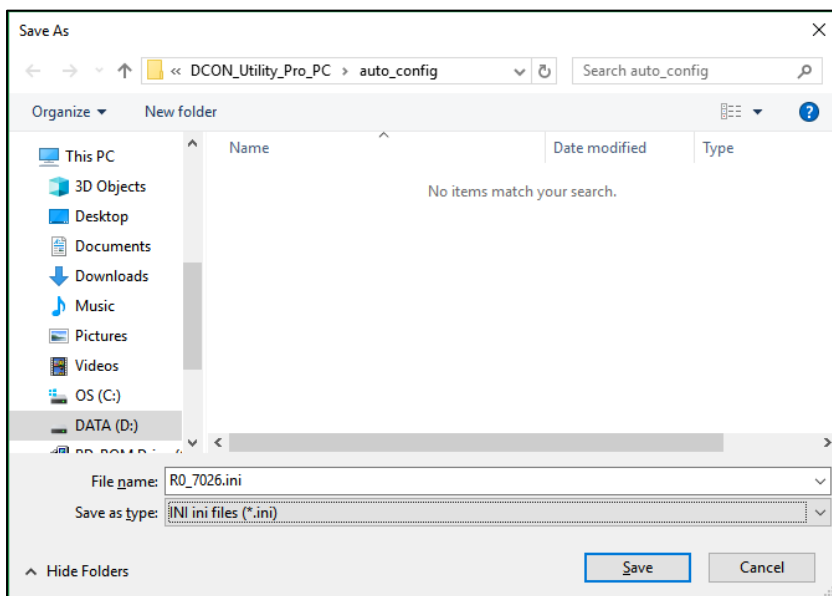
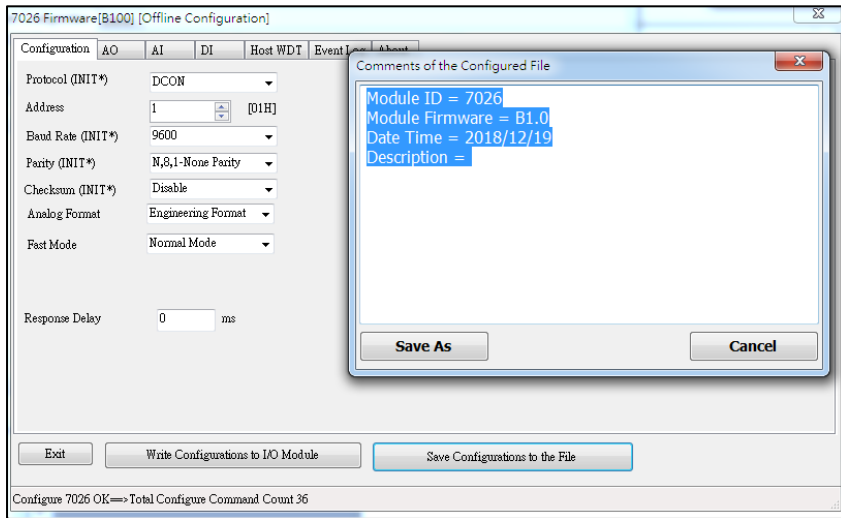


if need to set next module with different net address or the same net address, just change as new one and click "Write Configurations to I/O Module" to make the change affected.

Let the module's INIT* to normal state and reset the power and it will startup with new settings.

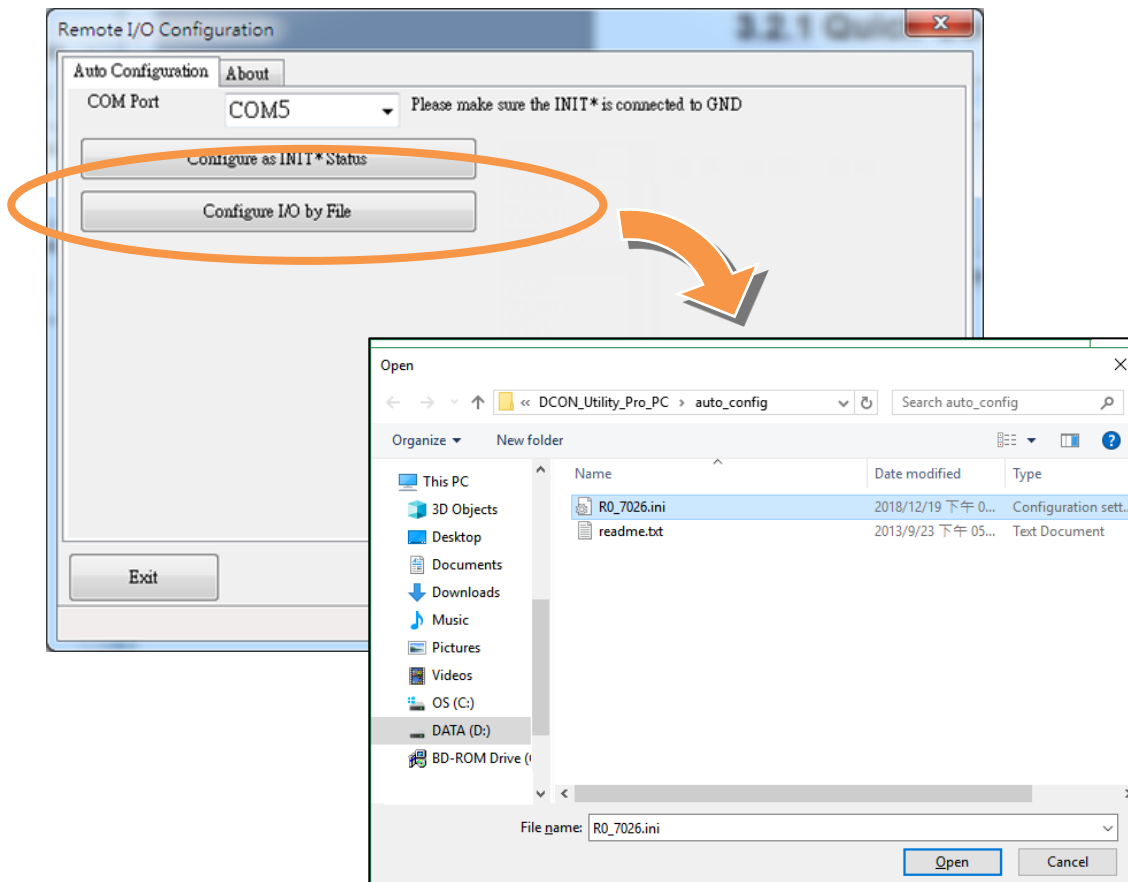
3.2. Save configurations to file and configure I/O by file

Steps for saving configurations to file, then users can back up the module's configurations.

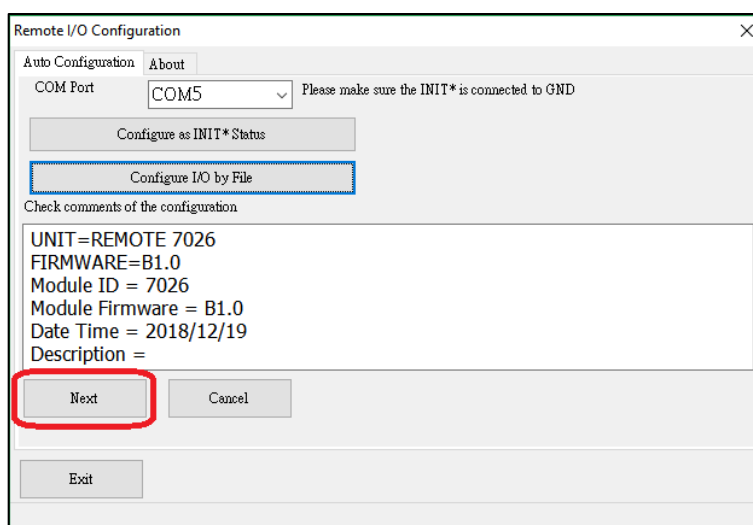


3.3. Restore the configurations by loading saved file

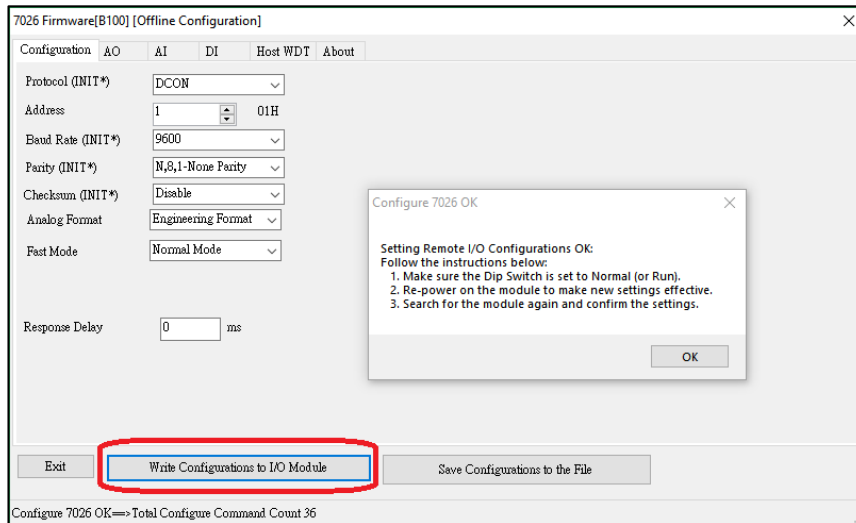
Step 1: Make sure the INIT switch set to “Init Mode” side, then power on the module



Step 2: Click “Next” button to enter Offline configuration form of selected module



Please check module in Init Mode as above step 1. If module is in INIT Mode, DCON Utility will enter modules' Offline configuration form as below step:

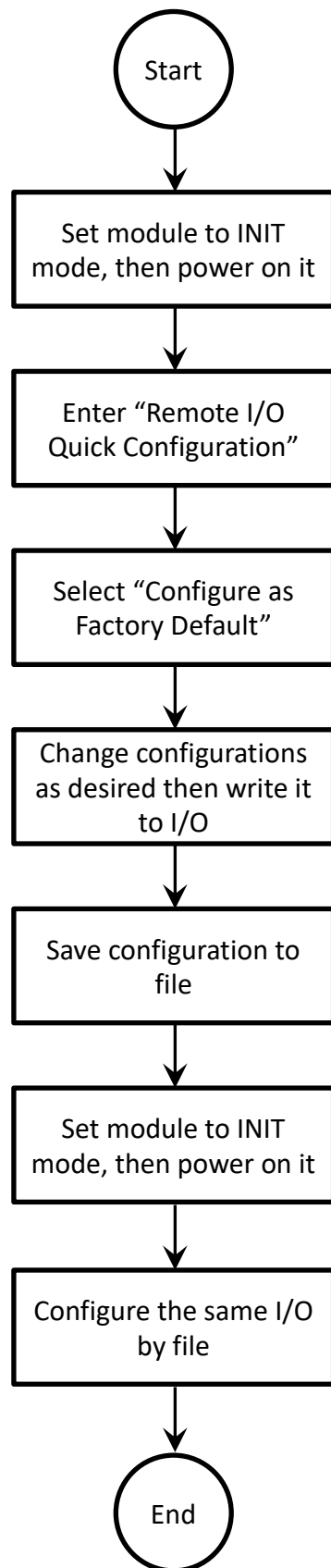


Tips & Warnings

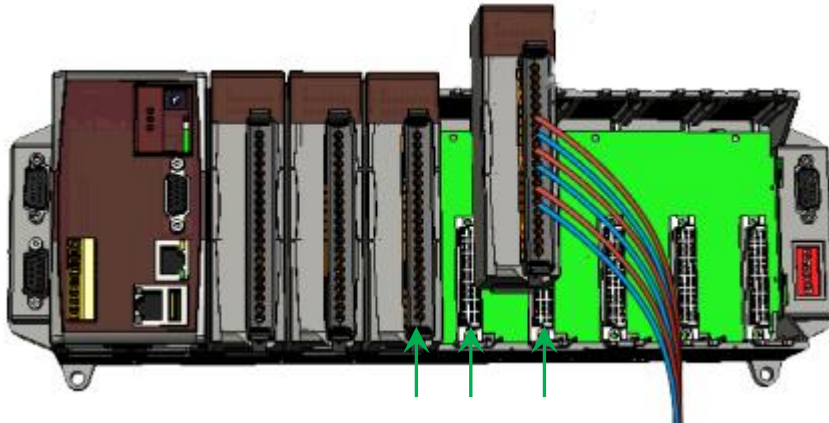


There is only one module can be power on in “INIT Mode” settings when configuration modules. It needs to remove before finished module, then user can configure next module in “INIT Mode”. When module in “INIT Mode”, the communication settings will not effected right away. It needs to switch module to “Normal Mode” then reset power. The new settings will be effect. User can configure all modules finish and switch all to Normal Mode, then it can power on all modules in the RS-485 network.

Step 3: Search the I/O module and verify the configuration result



4. Configure and test I-8K and I-87K modules on I/O expansion slot for ICPDAS PAC



I/O expansion slot Plug in I-8K or I-87K module

Search backplane I/O modules:

DCON Utility Pro CE V 2.0.1.0

Start Address: 1 End Address: 8

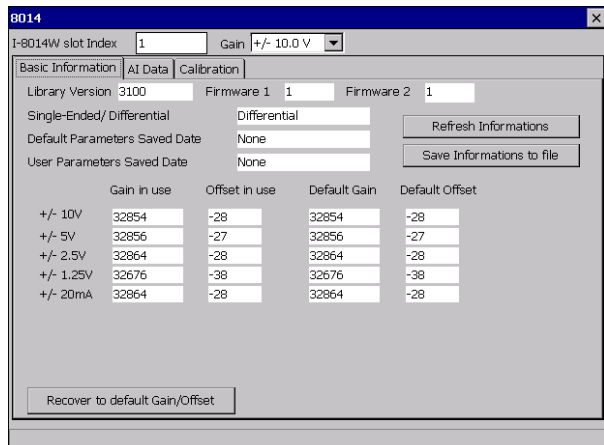
ID	Addr	Baud Rate	Checks	Format	Status	Description
8014	Slot1	-	-	-	Slot ...	[8KIO]8/16*AI (mA,mV,V)
8040	Slot2	-	-	-	Slot ...	[8KIO]32*DI
87088	Slot3	115200	Disable	N,8,1	Slot ...	[DCON]8*PWM + 8*DI
87005	Slot4	115200	Disable	N,8,1	Slot ...	[DCON]8*AI +8*DO (Unive
87019R	Slot5	115200	Disable	N,8,1	Slot ...	[DCON]8*AI (Universal mA
87028U	Slot6	115200	Disable	N,8,1	Slot ...	[DCON]8*AO (V)
87013	Slot7	115200	Disable	N,8,1	Slot ...	[DCON]4*AI (RTD)

COM: 1[N,8,1] || Slot: 7[07h] || Baud Rate: 115200 || Checksum: Disable

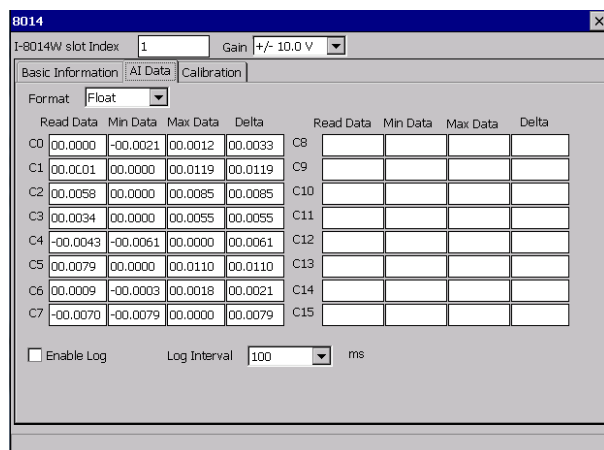
I-8K modules (rows 1-2)
I-87K modules (rows 3-7)

When search backplane I/O modules, they include serial bus I/O (I-87K/I-97K) and parallel bus I/O (I-8K/I-9K)

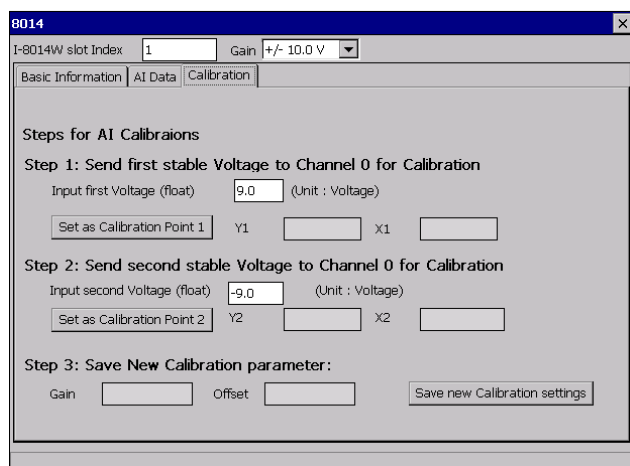
The parallel bus I/O (I-8K/I-9K), can check the calibration parameters



Test the I/O values

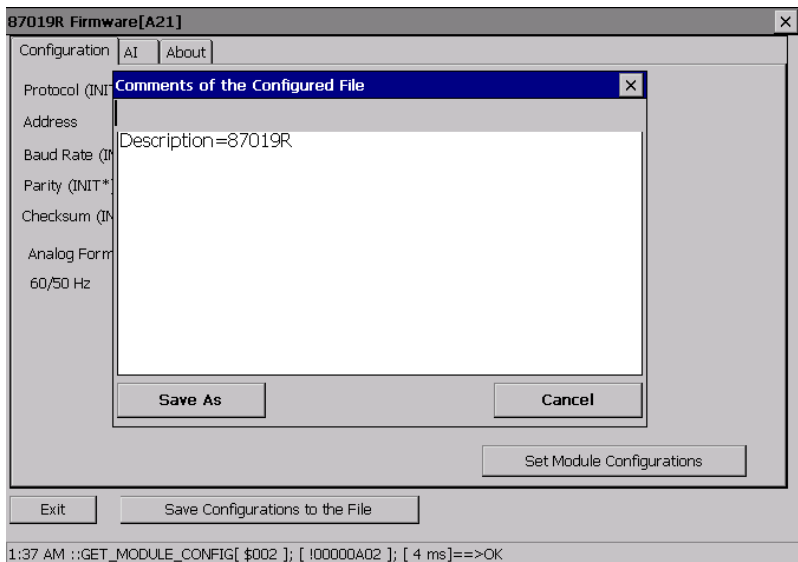
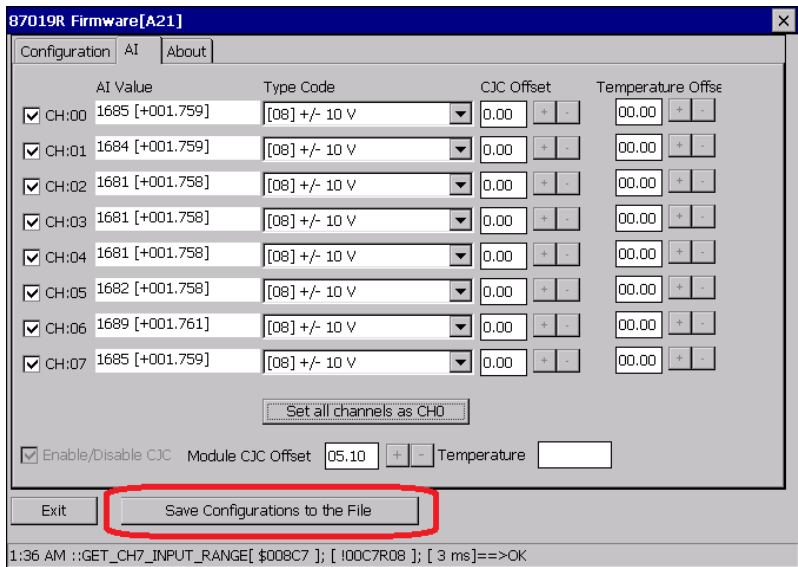
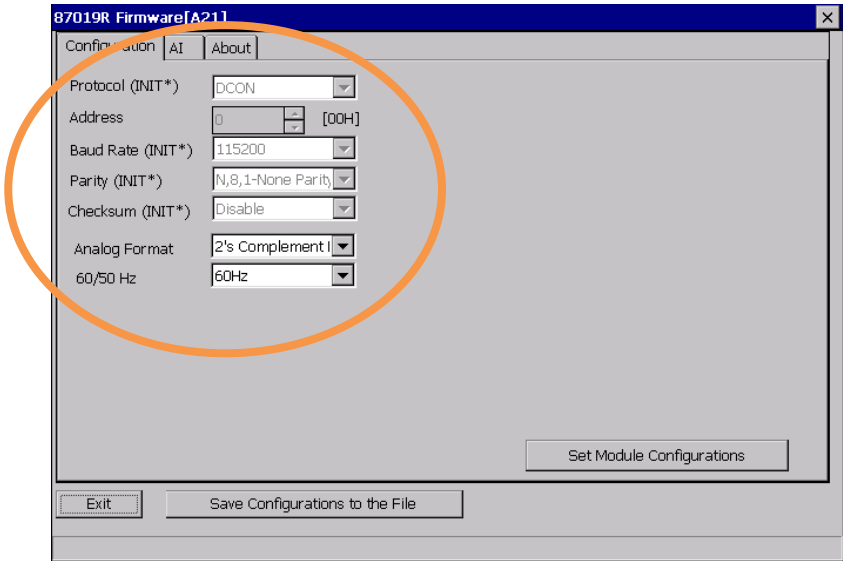


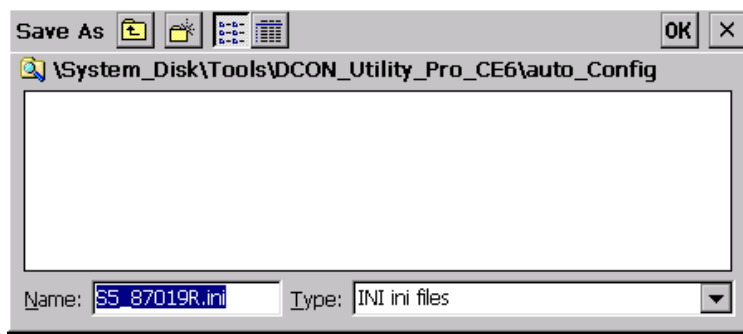
It also provides UI to calibrate the I/O accuracy



For serial bus I/O (I-87K/I-97K), there is no need to set communication parameters.

Step 1: Click module name to enter configuration form and write configuration, then save configuration to .ini file as below:

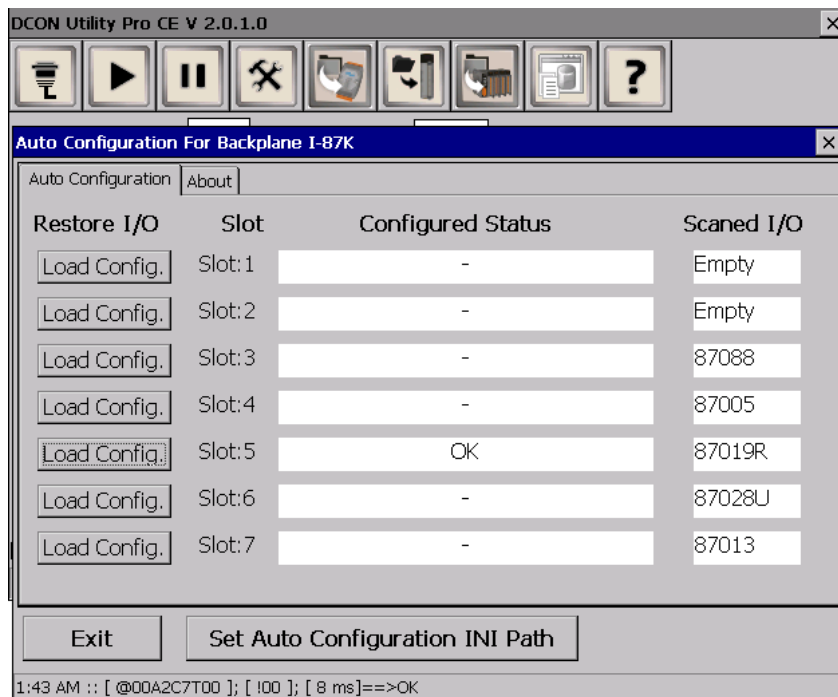
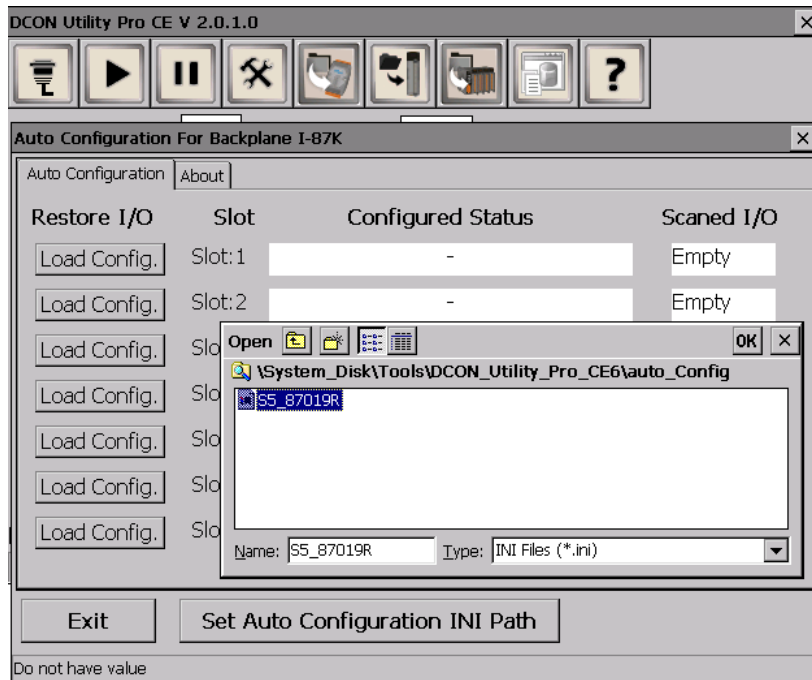


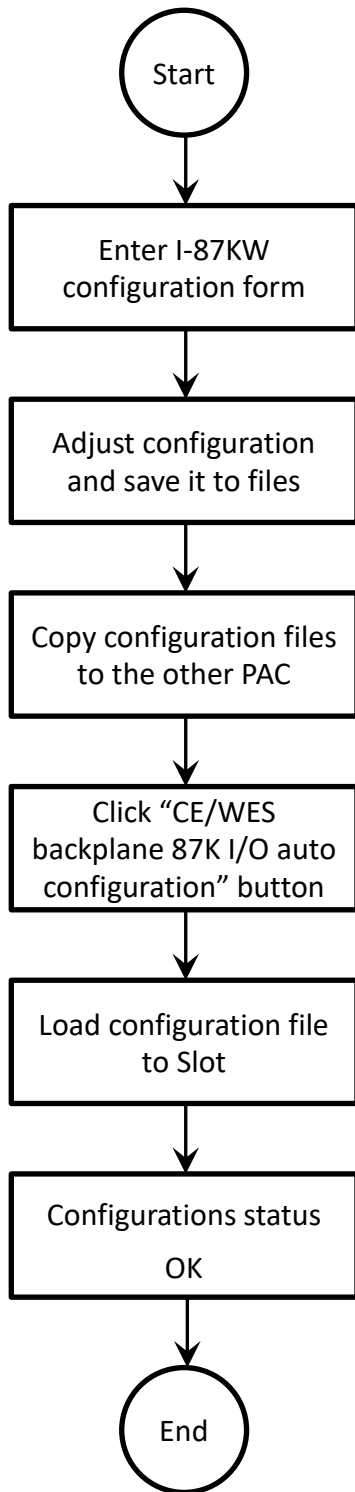


Step 2: Load configuration status OK. Then you can load files for every I-87KW slot and every PAC using the same configuration settings without do it again and again.

4.1. Load file step for Configuration and test modules on slot

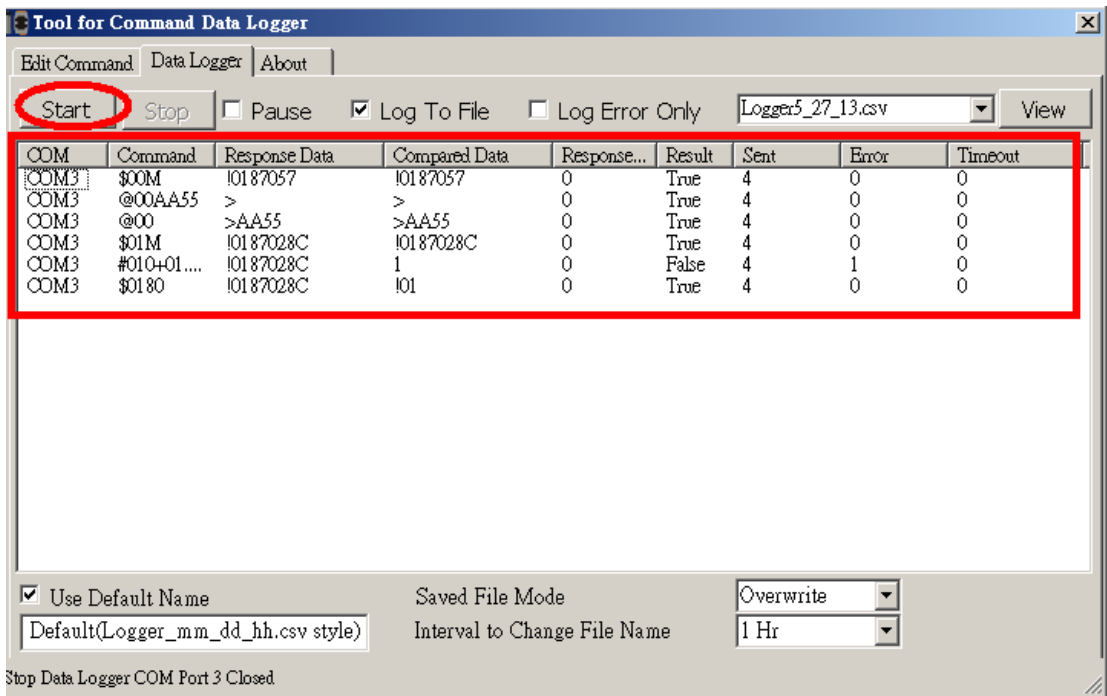
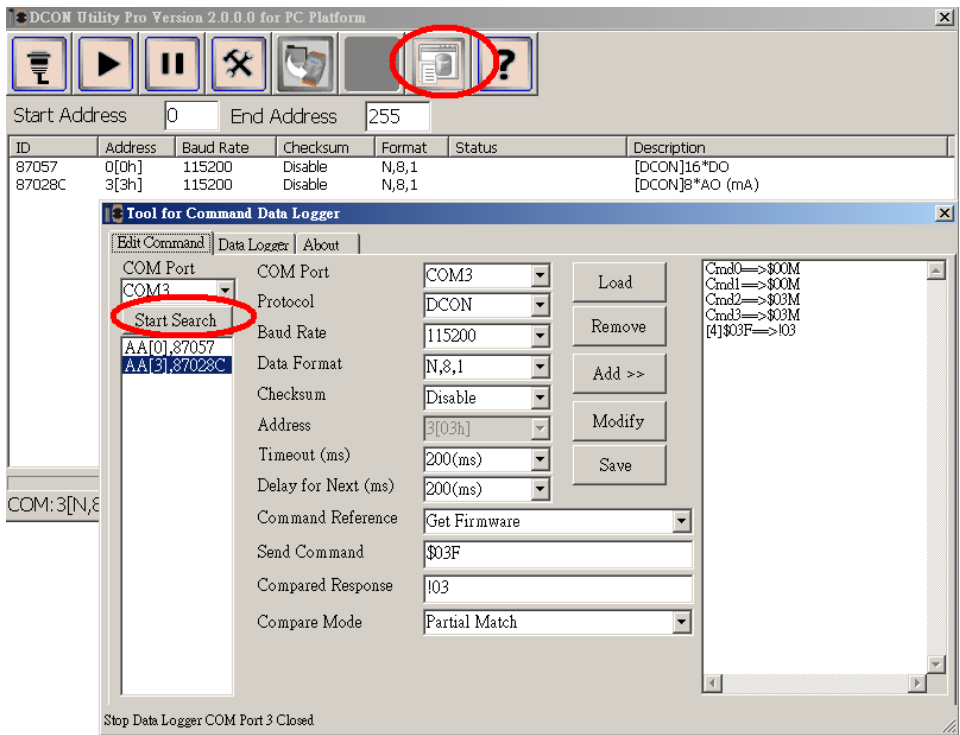
Steps for configuration I-87K module once, copy and load file to the others PAC without configuration them again and again.






User only can save and load configuration for I-87k module but I-8K module.

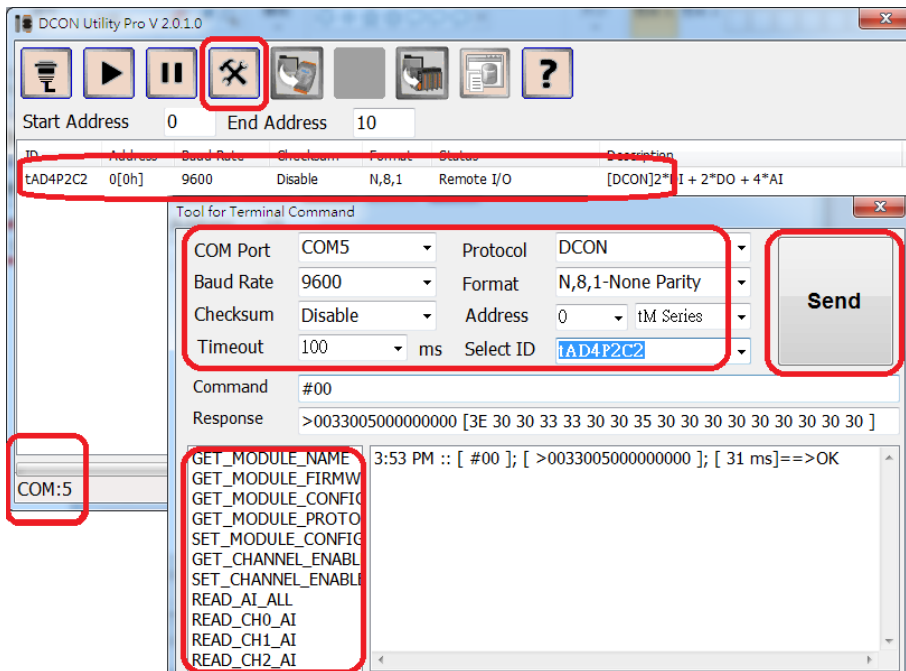
- Run Data Logger: Utility use customized parameter to monitor the I/O modules and will make a log file for I/O data.



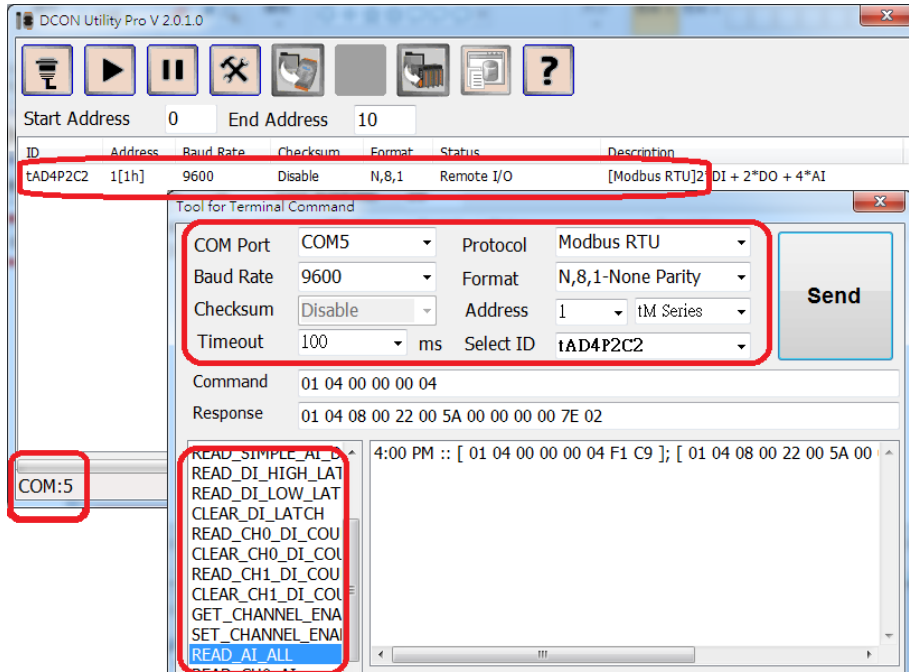
- Terminal Line: for some situation users would want to use command to test module's function directly.

To use command to test a module, it should know all its communication parameters or it will get no response.

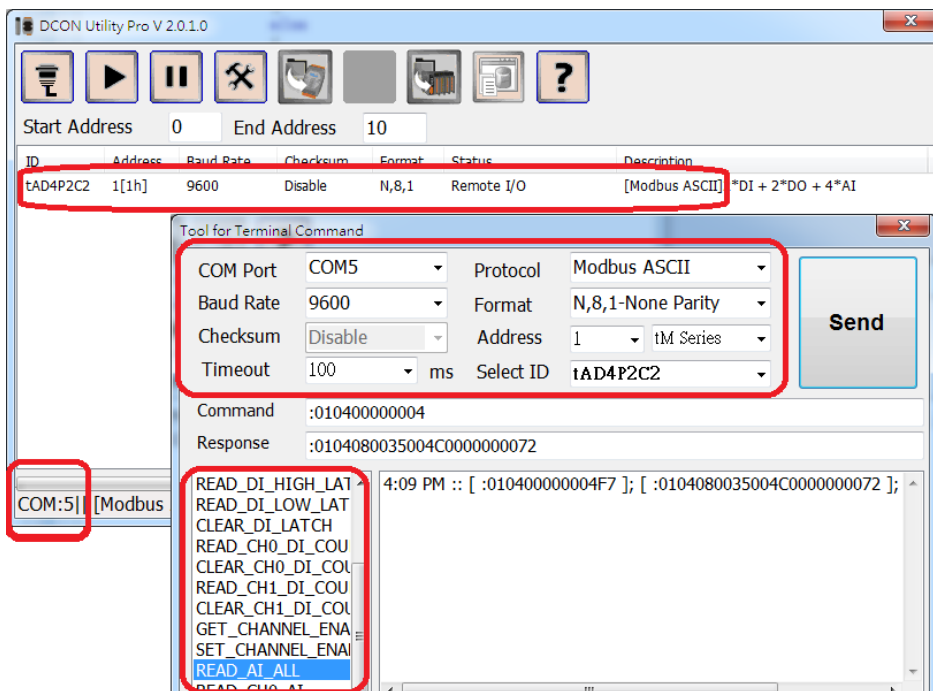
1. It can get the communication parameters by using search function.
2. If doesn't have any idea about modules communication parameters, it can set module to INIT* state and reset the power and start searching, it will be found as Initial communication settings. (please refer to)
3. Click the "Command Line" () and select the parameters correctly then start to test the command.
4. User can choice the module's "Address" and "Select ID", it gets a list of commonly used commands at the left bottom block of UI, it just needs to select the test command in the list and click the "Send" button to get the result data.



Test the Modbus RTU protocol




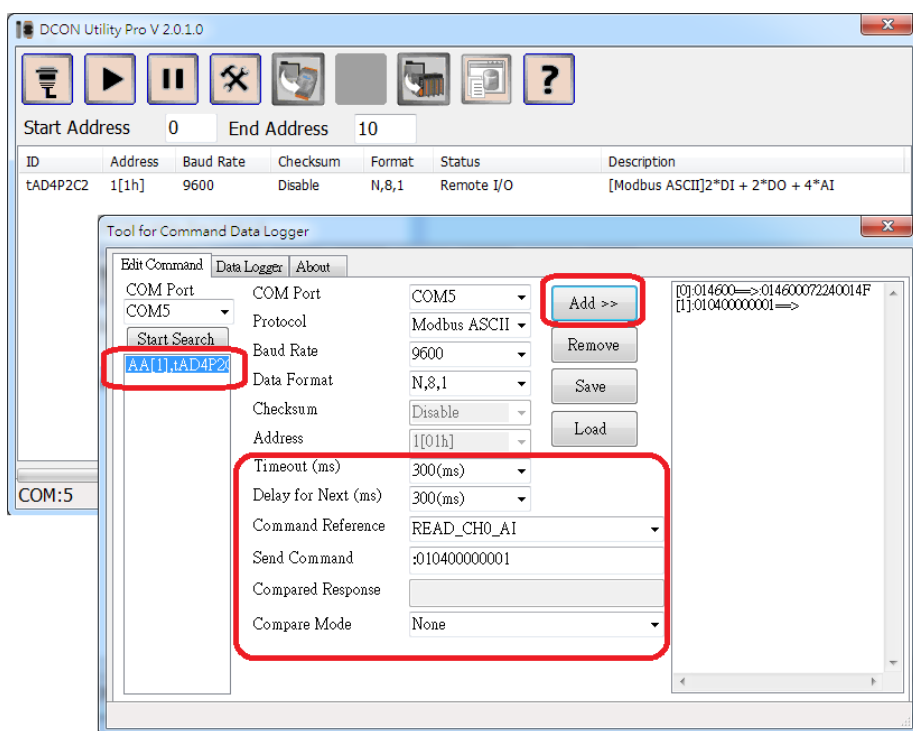
Test the Modbus ASCII protocol



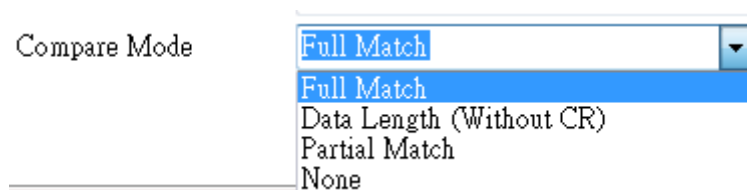
4.2. Data Log function

This is a useful Data Logger tool. It can help customer to save data as *.csv file and it can compare some information on response data.

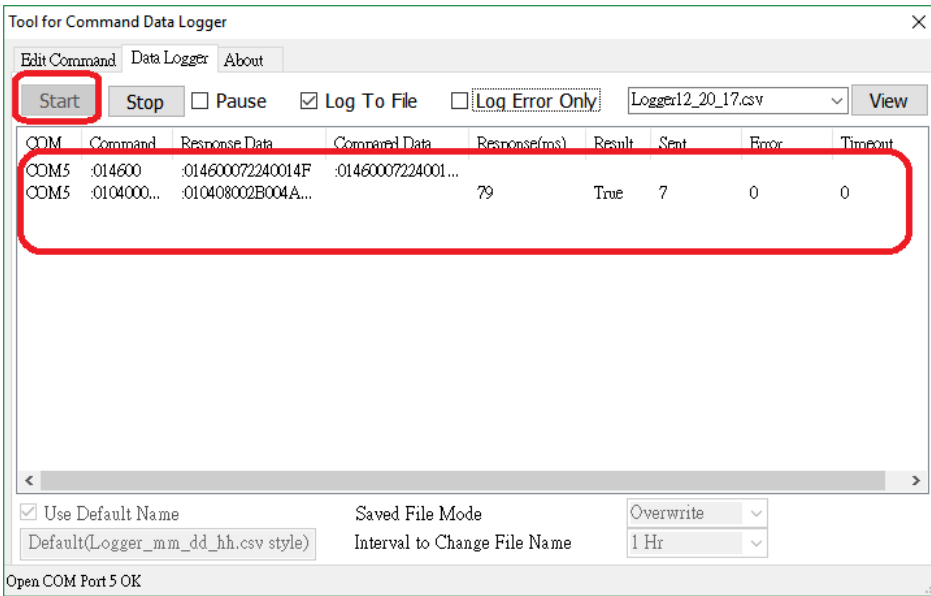
1. Search the COM Port to find the modules on RS-485 bus.
2. Click Data Logger button  it will auto load all the searched modules (it can also click Start Search to search module in Data Logger Tool).
3. Select module ID, it will show communication parameters and the common commands for this module in correct protocol.
4. Select the test command from "Command Reference" list and edit the log conditions then click "" to add this command to scan list.



There are four comparison options as below.

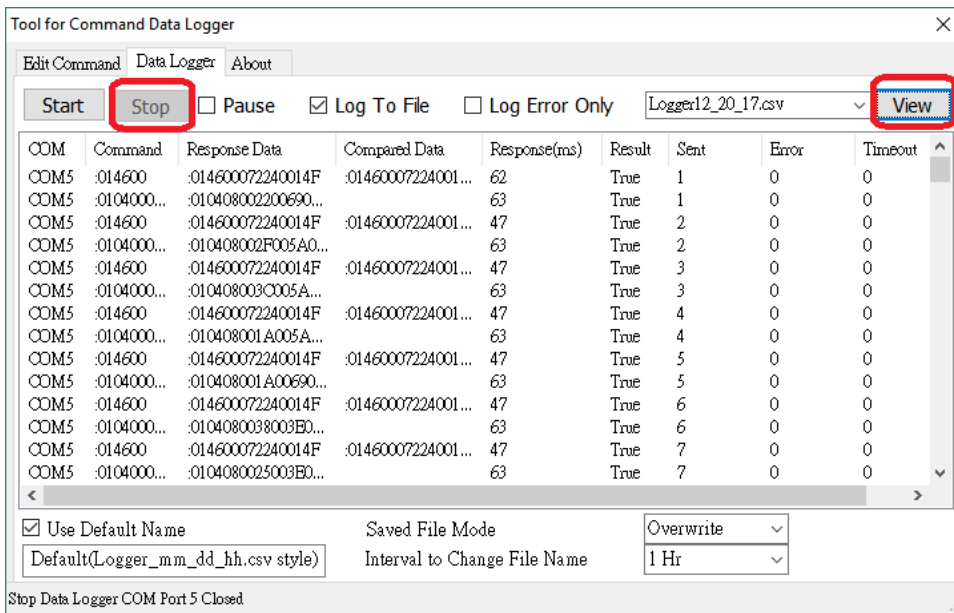


5. Change to “Data Logger” page and click “Start” to start the Data Logger.



6. Click “Stop” to stop the Data Logger.

7. Click “View” can load the data list as below.




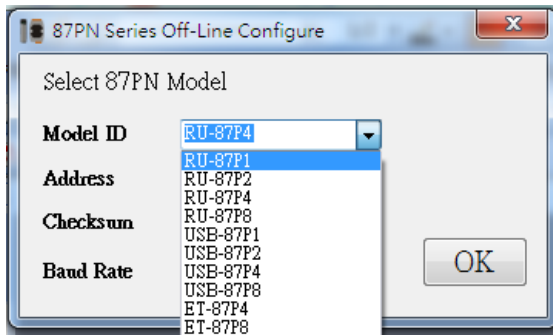
Default file name and path will be as DCON_Utility_Pro\log_report\Logger_mm_dd_hh.csv. User can open it as Microsoft Excel to check data.

Time	Command Index	COM	Command	Response Data	Compared Data	Response Time	Compare Mode	Result	Sent Count	Compared Error Count	Timeout Count
12_20_17:15:49:499	0	COM5	:014600	:014600072240014F	:014600072240014F	78	Full Match	TRUE	1	0	0
12_20_17:15:49:804	1	COM5	:010400000004	:010408002800640000000067		62	No Compared	TRUE	1	0	0
12_20_17:15:50:134	0	COM5	:014600	:014600072240014F	:014600072240014F	47	Full Match	TRUE	2	0	0
12_20_17:15:50:446	1	COM5	:010400000004	:0104080037004C0000000070		63	No Compared	TRUE	2	0	0
12_20_17:15:50:764	0	COM5	:014600	:014600072240014F	:014600072240014F	47	Full Match	TRUE	3	0	0
12_20_17:15:51:70	1	COM5	:010400000004	:010408003C004A000000006D		63	No Compared	TRUE	3	0	0
12_20_17:15:51:389	0	COM5	:014600	:014600072240014F	:014600072240014F	47	Full Match	TRUE	4	0	0
12_20_17:15:51:895	1	COM5	:010400000004	:010408001E00640000000074		125	No Compared	TRUE	4	0	0
12_20_17:15:52:15	0	COM5	:014600	:014600072240014F	:014600072240014F	47	Full Match	TRUE	5	0	0

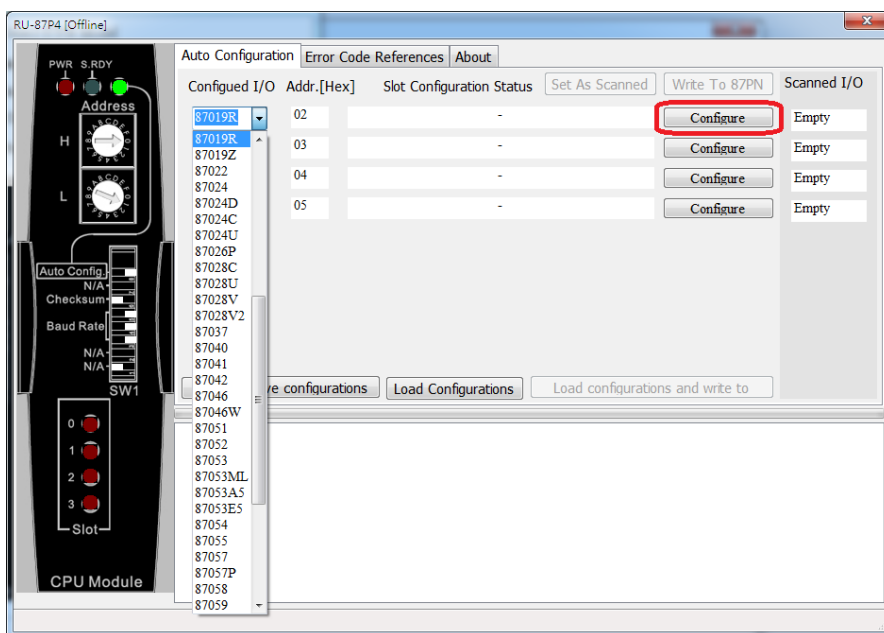
4.3. Offline Configuration for 87Pn

It can edit the configuration files for RU-87Pn/USB-87Pn/ET-87Pn in offline mode

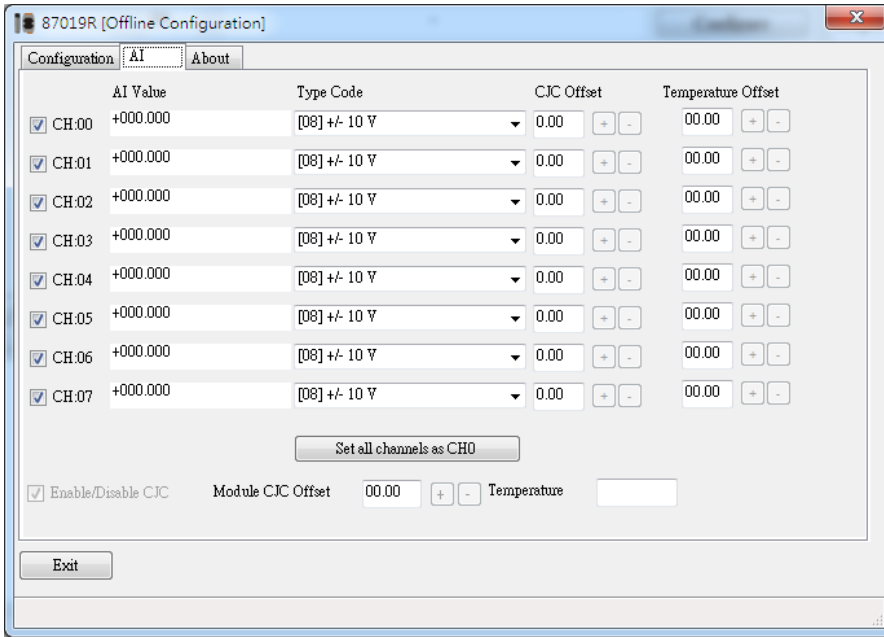
Click “Offline Configuration for 87Pn” () and select the 87Pn model.



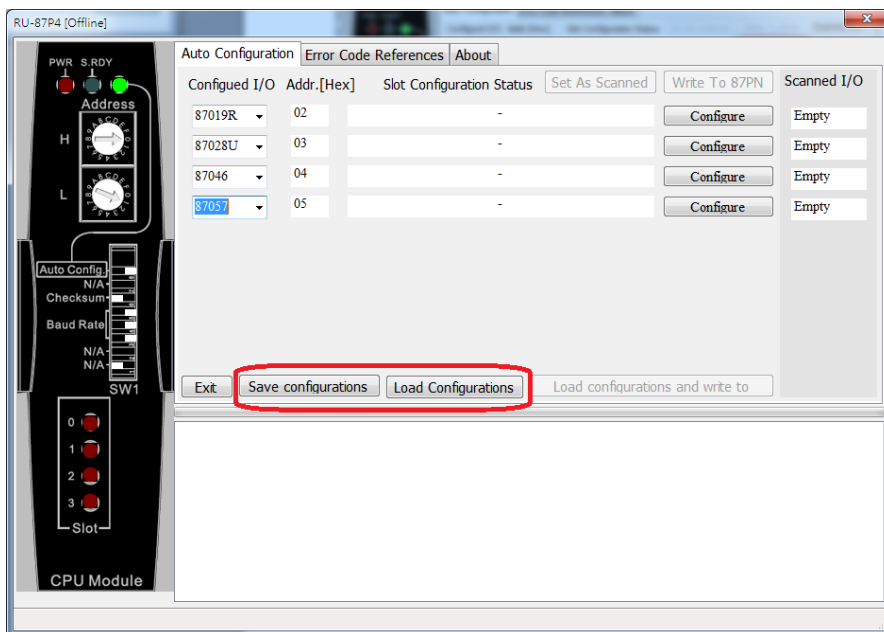
Select the module ID then click “Configure” button to Load the configuration form of selected ID.



Change the module configuration then exit the form.



Click “Save Configurations” to save all configurations on 87Pn slot.



User can send the configuration file by email or any communication tools to remote site, then the remote site can use their PC to run the DCON Utility Pro to load and write to their 87Pn.

For more detail, please refer to RU-87Pn user manual section 3.3 Load & Write configure file at URL:

ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/87pn_io_unit/ru-87pn/

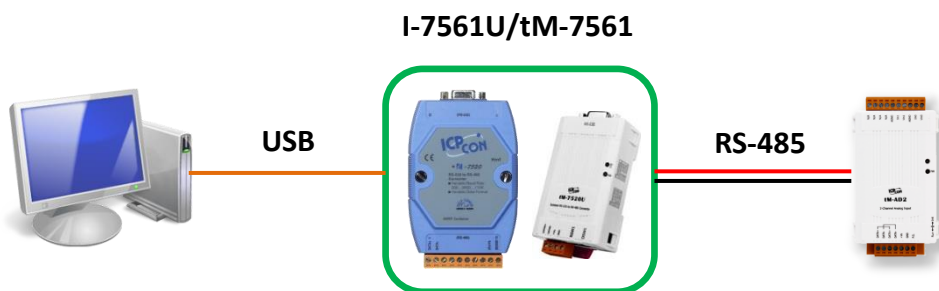
4.4. Setup RS-485 interface

DCON Utility Pro uses COM port to search remote serial I/O modules, if use PC or Laptop, it needs RS-232 to RS-485 converter or USB to RS-485 converter.

RS-232 to RS-485 Converter



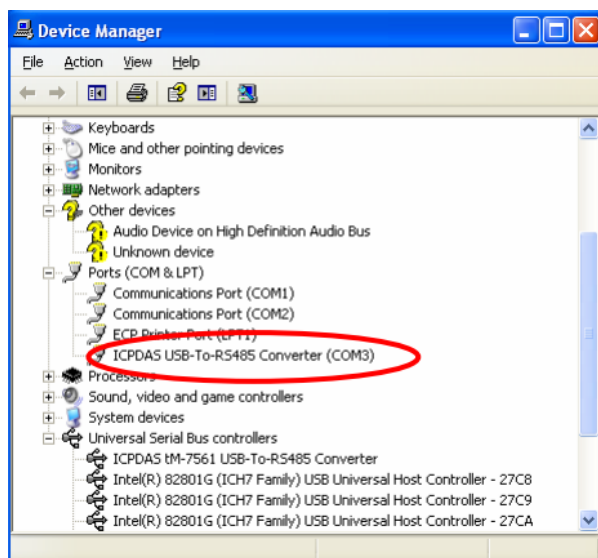
USB to RS-485 Converter (needs to install USB driver)



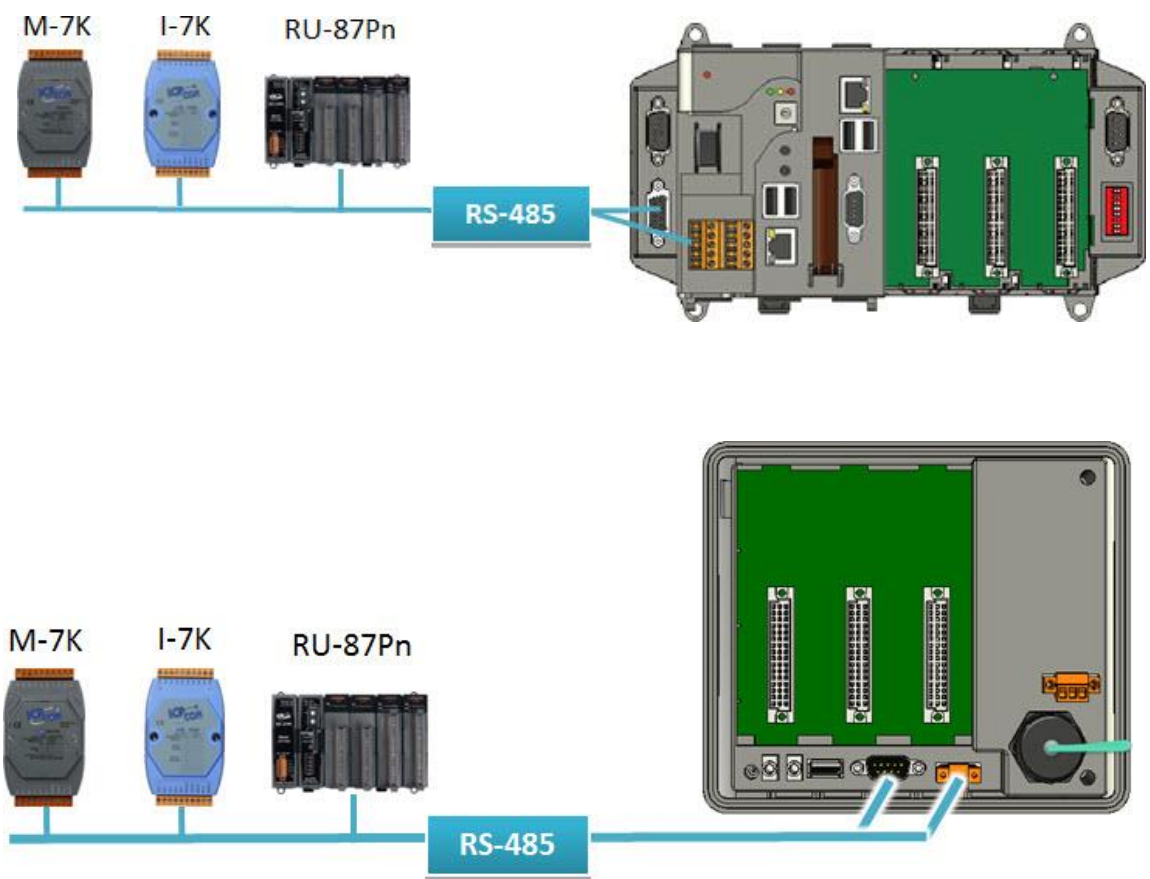
Download and Install USB driver

http://ftp.icpdas.com/pub/cd/Usb_tM/NAPDOS/UsbConverter/tM-7561_series/

Check the Device Manager to make sure the USB driver has been installed successfully.



If use PAC, it has RS-485 interface, it can configure the remote I/O modules



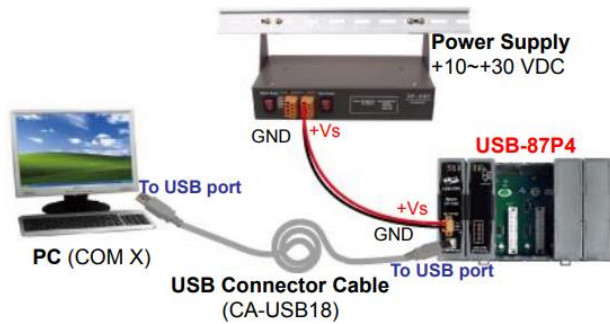
4.4.1. RS-485 interfaces

Module	Protocol	Comments
I-7000	DCON	RS-485
M-7000	Modbus RTU DCON	RS-485
tM series	DCON Modbus RTU Modbus ASCII	RS-485
M-2000	Modbus RTU DCON	RS-485
M-6000	Modbus RTU DCON	RS-485
I-87K	DCON	I-87Kn I/O Expansion Unit (RS-485) RU-87Pn I/O Expansion Unit (RS-485)
Sensor Series	Modbus RTU DCON	RS-485
SC Series	Modbus RTU DCON	RS-485
LC Series	Modbus RTU DCON	RS-485
DALI Gateway	Modbus RTU DCON	RS-485
I-8K/I-87K	DCON	IP-8411/IP-8811/I-8410/I-8411/I-8810/I-8811 (RS-485)

4.4.2. USB Interface

Module	Protocol	Comments
I-87K	DCON	USB-87Pn I/O Expansion Unit (USB Port)

http://ftp.icpdas.com/pub/cd/8000cd/napdos/87pn_io_unit/usb-87pn/



it needs to install USB driver.

http://ftp.icpdas.com/pub/cd/8000cd/napdos/87pn_io_unit/usb-87pn/



4.4.3. Ethernet interface but using VxComm Port as communication port

The VxComm Driver creates virtual COM ports in Windows and maps them to the serial ports of the Slave I/O series device servers through the Internet/Ethernet network. The user's RS-232 client programs need only to change to the virtual COM port to access the serial devices connected to the device servers through the network.

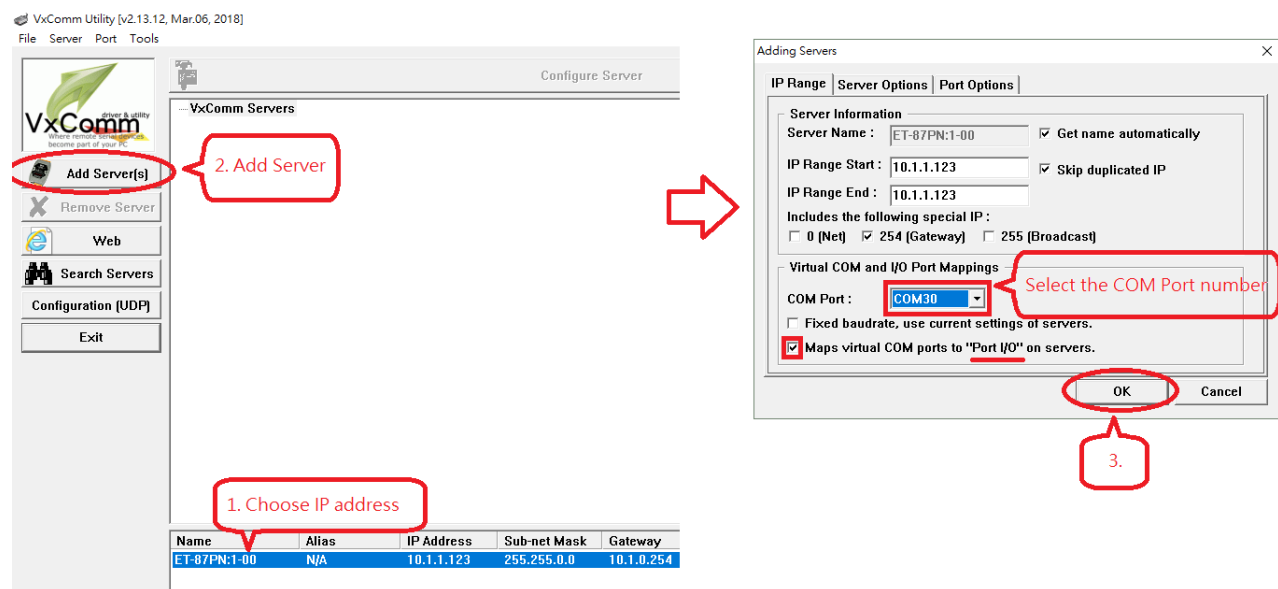
Module	Protocol	Comments
I-87K	DCON	ET-87Pn Ethernet I/O Expansion Unit (VxComm Port)
FRnet Products	DCON	I-7188EF-016/I-7188EFD-016 (VxComm Port) (using VxComm Port via Ethernet Port 9999)
I-8K/I-87K	DCON	

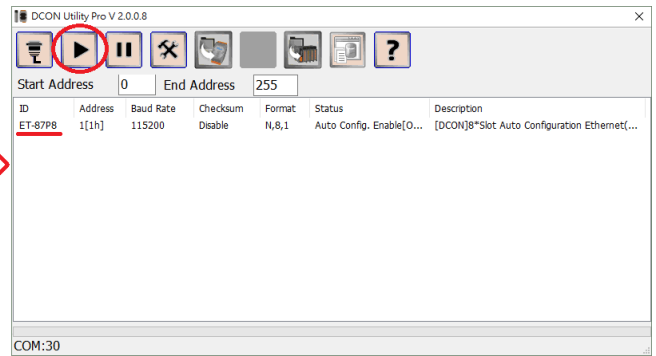
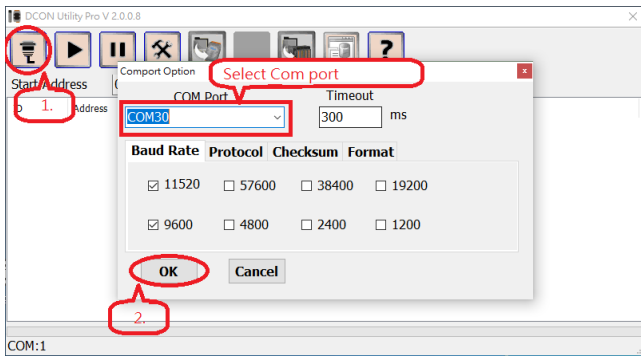
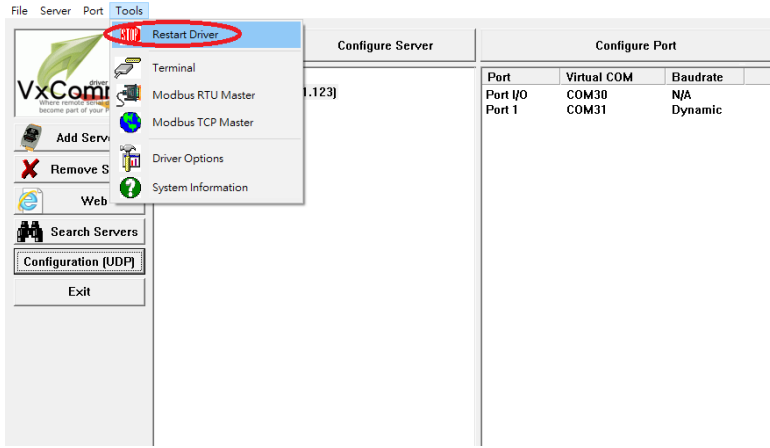
For PC or Laptop to configure Ethernet remote I/O modules

Download VxComm Utility

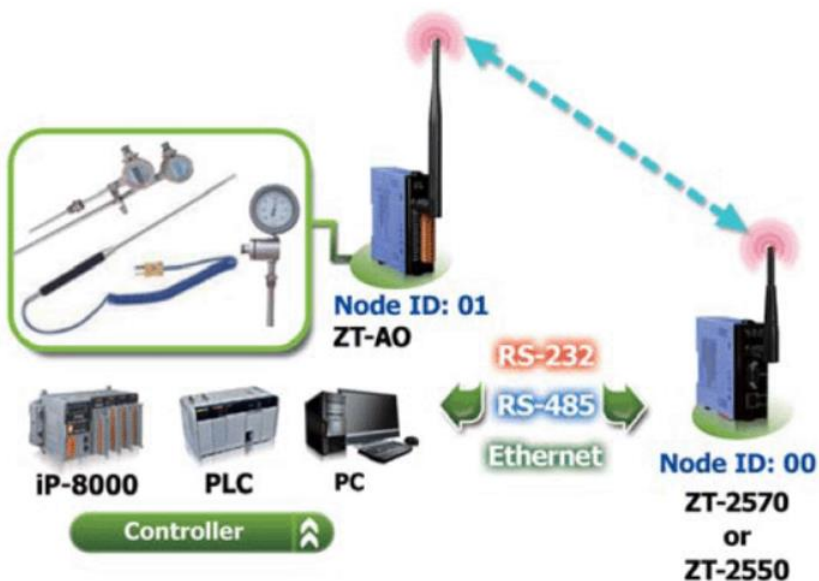
http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/vxcomm_driver/

Install VxComm Port (Port I/O)





4.4.4. Zigbee interface



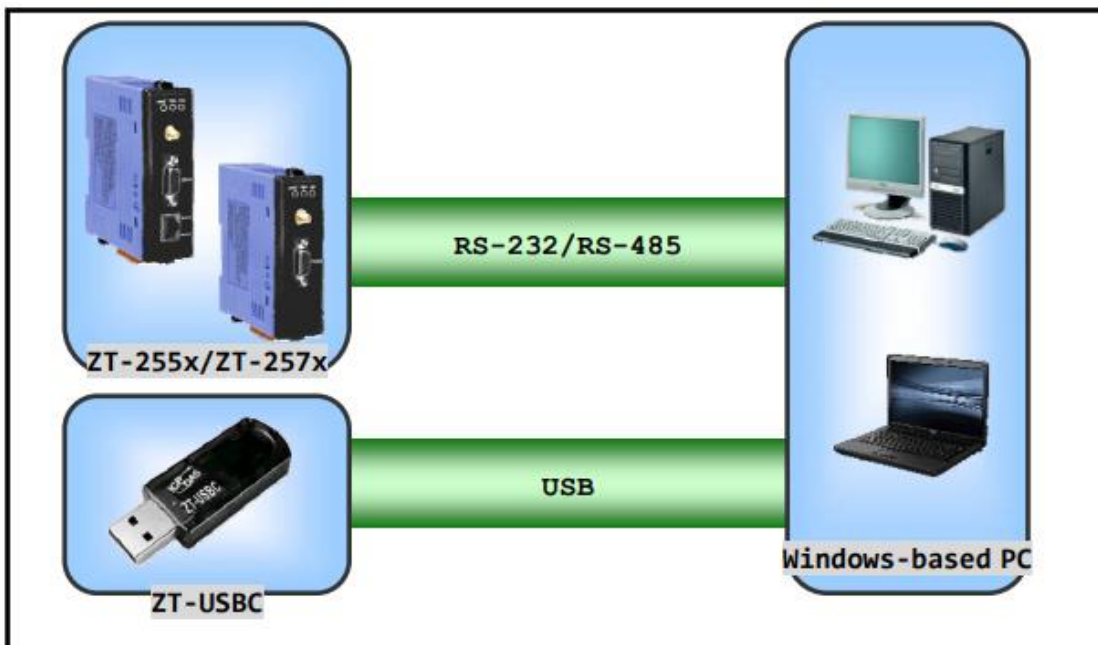
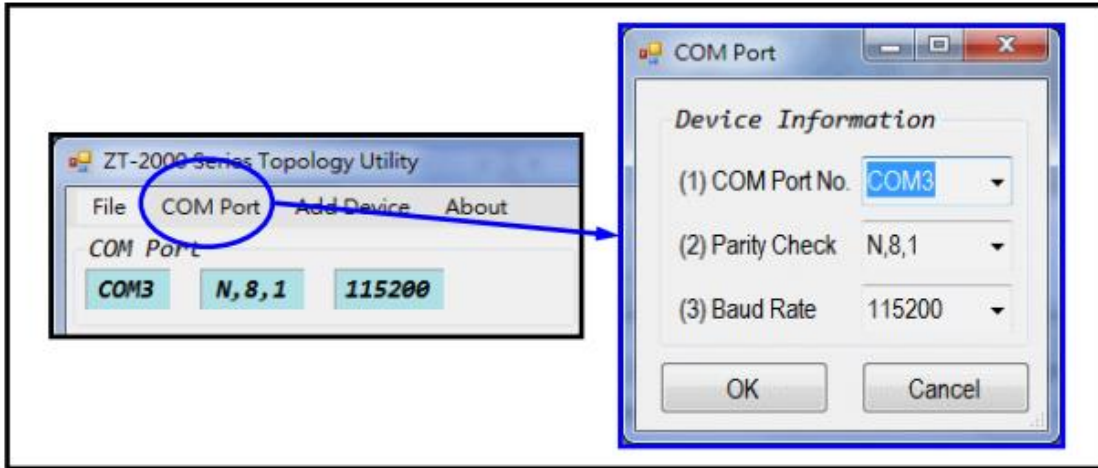
http://www.icpdas.com/root/product/solutions/industrial_wireless_communication/wireless_solutions/wireless_selection.html#

Module	Protocol	Comments
ZigBee Products	Modbus RTU DCON	RS-485 + ZB Converter

Setup the ZT-2000 Converter

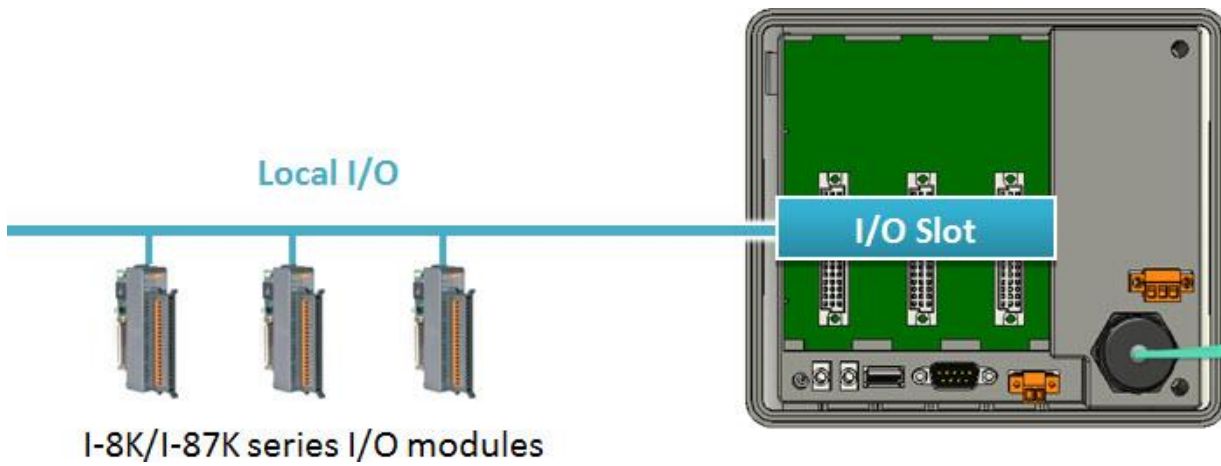
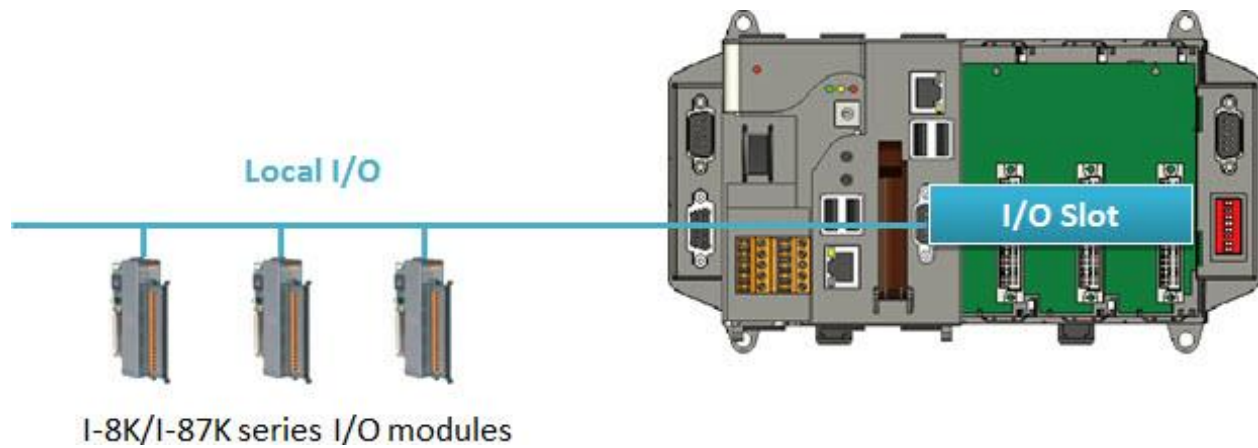
http://ftp.icpdas.com.tw/pub/cd/usbcd/napdos/ZigBee/zt_series/utility/

1. Connecting to the ZT-2000 Converter Connect the ZT-2000 Series converter to the Host system using the either USB, an RS-232 or an RS-485 cable.
2. Execute the ZT-2000 Topology Tool and click the COM Port menu item. Select the relevant COM Port number from the drop-down menu, and then select the data format and Baud Rate for the serial port. Click the OK button to initialize communication with the device.



Run DCON Utility Pro and select the appropriate COM Port settings to connect to the ZigBee Coordinator (ZT-2550/ZT-2570).

5. Configure Backplane Local Slot I/O modules



Below table show PAC model type and OS relation:

OS \ PAC	WP-8000 WP-5000	XPAC-8000	ViewPAC	The others	Backplane COM port
CE5	WP-8xxx WP-51xx		VP-41xx, VP-25Wx VP-23Wx		COM0
CE6		XP-8xxx-CE6 XP-8xxx-Atom-CE6			COM1
CE7 (ARM CPU)	WP-5231 WP-5231-3GWA		VP-4231-CE7	IWS-2231-CE7 IWS-3231-CE7 IWS-4231-CE7	COM0
WES		XP-8xxx XP-8xxx-Atom		iPPC-6631-WES7	COM1

Module	Protocol	Comments
I-87K	DCON	Backplane COM Port, Serial bus
I-8K	I/O API	Backplane Data Bus, Parallel bus

Default communication settings of I/O modules are list at the below table.

	I-7K	I-87K	M-7K, tM and other modules which support Modbus RTU protocol
Protocol	DCON Protocol	DCON Protocol	Modbus Protocol
Address	1	1	1
Baud rate	9600	115200	9600
Checksum	Disabled	Disabled	Not defined

Initial communication settings of I/O modules are list at the table below.

	I-7K, M-7K, tM and other modules	I-87K
Address	0	0
Baud rate	9600	115200
Checksum	Disabled	Disabled
Protocol	DCON Protocol	DCON Protocol

Note: The default settings and initial settings are different.

Note: The Ethernet I/O unit can't power on with INIT* status to get the default communication setting, because when INIT* connect to INIT*COM, the firmware cannot be auto executed by the MiniOS7.

Module	Protocol	Comments
I-87K	DCON	ET-87Pn Ethernet I/O Expansion Unit (VxComm Port)
FRnet Products	DCON	I-7188EF-016/I-7188EFD-016 (VxComm Port) (using VxComm Port via Ethernet Port 9999)
I-8K/I-87K	DCON	IP-8441/IP-8841/I-8430/I-8431/I-8830/I-8831/I-8KE4/I-8KE8 (VxComm Port)

Appendix A. Trouble Shoot

DCON Utility needs to install Microsoft .NET Framework 3.5 or later version.

User can download it from WEB:

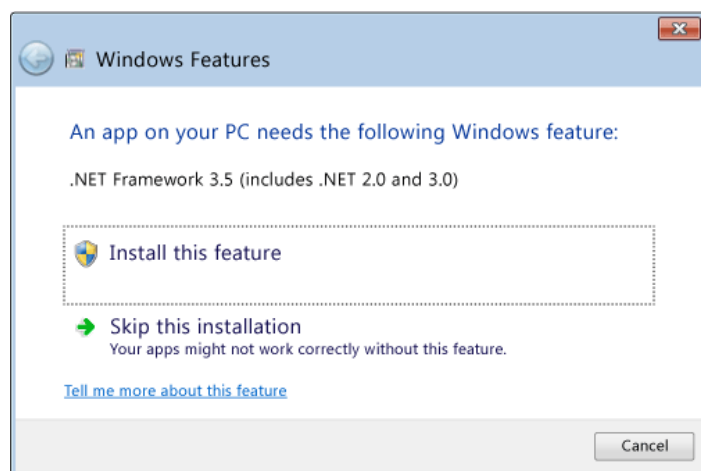
<http://www.microsoft.com/en-us/download/details.aspx?id=21>

Install the .NET Framework 3.5 on Windows 10, Windows 8.1, and Windows 8

You may need the .NET Framework 3.5 to run an app on Windows 10, Windows 8.1, and Windows 8. You can also use these instructions for earlier Windows versions.

Install the .NET Framework 3.5 on Demand

You may see the following configuration dialog if you try to run an app that requires the .NET Framework 3.5. Choose Install this feature to enable the .NET Framework 3.5. This option requires an Internet connection.




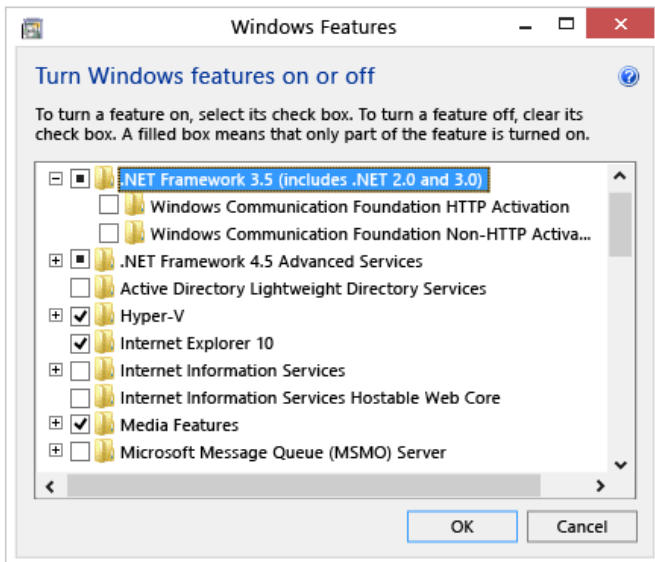
Why am I getting this pop-up?

The .NET Framework is created by Microsoft and provides an environment for running applications. There are different versions available. Many companies develop their apps to run using the .NET Framework, and these apps target a specific version. If you see this pop-up, you're trying to run an application that requires the .NET Framework version 3.5, but that version is not installed on your system.

Enable the .NET Framework 3.5 in Control Panel

You can enable the .NET Framework 3.5 through the Windows Control Panel. This option requires an Internet connection.

1. Press the Windows key  on your keyboard, type "Windows Features", and press Enter. The Turn Windows features on or off dialog box appears.
2. Select the .NET Framework 3.5 (includes .NET 2.0 and 3.0) check box, select OK, and reboot your computer if prompted.



You don't need to select the child items for Windows Communication Foundation (WCF) HTTP Activation and Windows Communication Foundation (WCF) Non-HTTP Activation unless you're a developer or server administrator who requires this functionality.

Troubleshoot the installation of the .NET Framework 3.5

During installation, you may encounter error 0x800f0906, 0x800f0907, 0x800f081f, or 0x800F0922, in which case refer to .NET Framework 3.5 installation error: 0x800f0906, 0x800f0907, or 0x800f081f to see how to resolve these issues.

If you still can't resolve your installation issue or you don't have an Internet connection, you can try installing it using your Windows installation media. For more information, see [Deploy .NET Framework 3.5 by using Deployment Image Servicing and Management \(DISM\)](#). If you don't have the installation media, see [Create installation media for Windows](#).

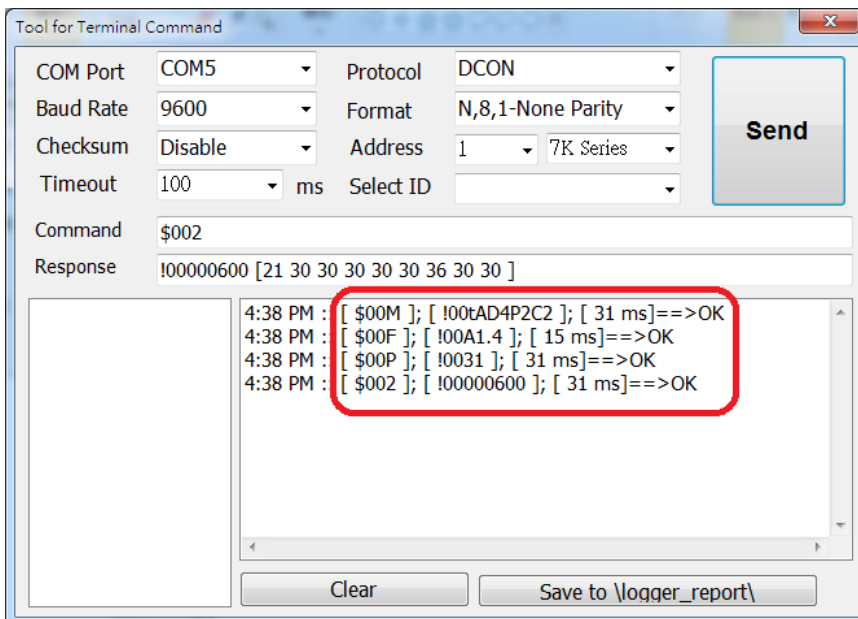
How to Solve “can’t find module” problem

If can’t find I/O modules. There are some conditions to be caused this result. We will list some case and methods to solve problem.

1. If use the third party USB to RS-485 converter, please refer to next section.
2. Check the power supply and total watts or current consumption of the system.
3. Remove all other modules and just keep RS-485 converter and one “module” on RS-485 bus as below



4. Let the “module” at INIT* to GND state then power on the “module”, at this moment the “module” should be at initial state.
5. Run DCON Utility Pro and open “Command Line” tool to check the following commands.



\$00M: make sure the module ID is correct.

\$00F: read the firmware version of module.

\$00P: to check the module used protocol (response !AASC).

- AA module address (Hex format · 00 ~ FF)
 - 0: only support DCON protocol
- S 1: support DCON and Modbus RTU protocol
 - 3: support DCON, Modbus RTU and Modbus ASCII protocol
 - 0: current use DCON protocol
- C 1: current use Modbus RTU protocol
 - 3: current use Modbus ASCII protocol

Note: For I-87K and I-7K modules, they don't support \$AAP command.

\$002 to check the communication parameters (response !AATTCCFF)

- AA check module address
- TT type code
- CC check baud rate and parity

Baud Rate Setting (CC)

7	6	5	4	3	2	1	0
Data				Baud			

Key	Description
Baud	Baud Rate 03: 1200 04: 2400 05: 4800 06: 9600 07: 19200 08: 38400 09: 57600 0A: 115200
Data	Data Format 0: N81 1: N82 2: E81 3: O81

- FF check checksum

Data Format Setting (FF)

7	6	5	4	3	2	1	0
0	CS						

CS	Checksum setting 0: Disabled 1: Enabled
----	---

If we know the module protocol, address, baud rate, checksum and parity settings then we can let the INIT* to normal state and use the exact communication parameters to search it.

If it still can't find this module, please mail to service@icpdas.com for service support.

The communication issues for Third party USB to RS-485 Converter

ICPDAS I/O modules need pull high and pull low resistors on RS-485 network for stable signal. If not, the signal on RS-485 may become unstable and may be caused communication problems as below list.

Problem phenomenon:

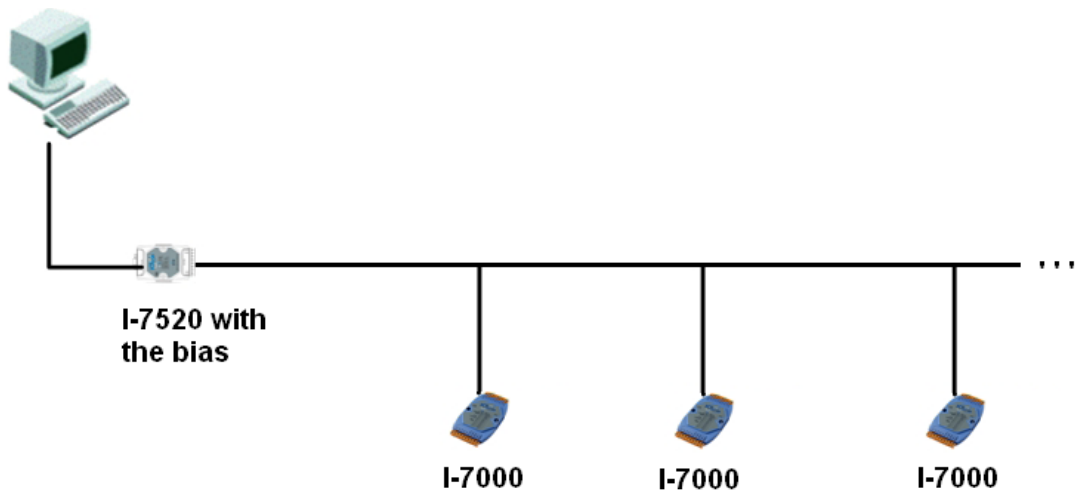
1. Can't communicate with I/O modules.
2. Modules work normal last time, and work abnormal this time.
3. Some/Sometimes modules work normal, some/sometimes modules work abnormal.

The RS-485 master is required to provide the bias resistors for I/O modules.

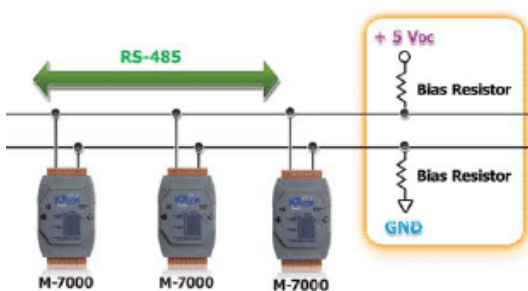
There are some solutions can fix this problem:

1. Use ICPDAS converter or PAC: ICPDAS converter and PAC with a pull high and pull low resistors. It can improve communication signal on RS-485 network. About more detail information for all series converter, please refer

http://www.icpdas.com/root/product/solutions/industrial_communication/industrial_communication_products.html#Converter



2. Add the Bias Resistor on RS-485 Network for stable signal:



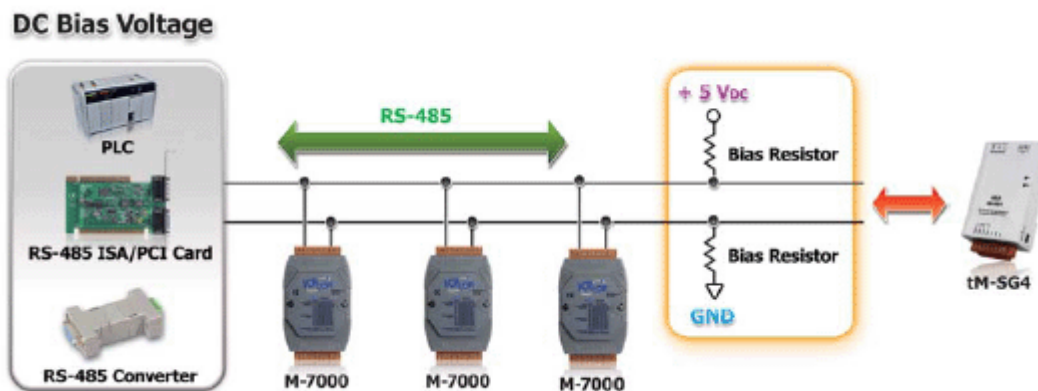
3. Add tM-SG4 or SG-785: tM-SG4 and SG-785 with pull high and pull low resistors. It also can improve communication signal on RS-485 network. About more detail information for all series converter, please refer below :

tM-SG4

http://www.icpdas.com/root/product/solutions/signal_conditioning_modules/sg-700/tm-sg4.html

SG-785:

<http://www.icpdas.com/products/DAQ/signal/sg-785.htm>



Appendix B. Revision History

This chapter provides revision history information to this document.

The table below shows the revision history.

Revision	Date	Description
1.0.1	January 2019	Initial issue
2.0.1	January 2019	Various bug fixes and performance improvements.