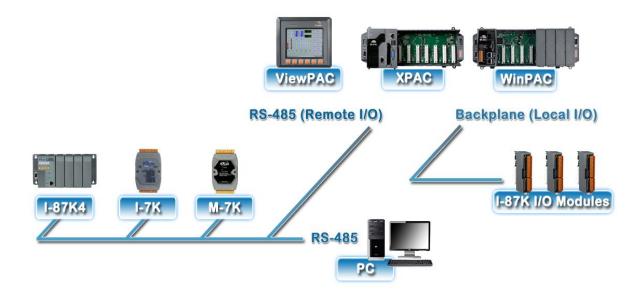
DCON Utility Pro

User's Manual

Version 1.1, May 2015



Written by Martin Hsu Edited by Hans Chen

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.

Warning

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Contact US

If you have any question, please feel free to contact us.

We will give you a quick response within 2 workdays.

Email: service@icpdas.com

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Chapter 1. Introduction

DCON Utility Pro is a toolkit that can help user easily to search, configure and test I/O modules. It can use on almost all Windows system. DCON Utility pro can be directly run on all ICPDAS Windows embedded PAC. ICPDAS provides different DCON Utility versions for different platforms that can be used to configure and test I/O modules. The installation file locations for different platforms are as below:

For Wir	For Windows 98,NT,2000,XP,Vista,Win 7 and Win 8 on PC, laptop and etc computer							
CD	CD:\ 8000\NAPDOS\Driver\DCON_Utility							
FTP	ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/							
For ICP	PDAS CE5 platform PAC							
CD	CD:\ napdos\wp-8x4x_ce50\Micro_SD\DCON_Utility_Pro							
FTP	http://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/micro_sd/dcon_ut ility_pro/							
For ICP	PDAS CE6 platform PAC							
CD	CD:\ XPAC\XPAC-ATOM-CE6\PC_Tools\DCON_Utility_Pro							
FTP	http://ftp.icpdas.com.tw/pub/cd/xpac-atom-ce6/pc_tools/dcon_utility_pro/							
For ICP	PDAS CE7 platform and ARM CPU PAC							
CD	CD:\WinPAC_AM335x\Wp-5231\System_Disk\Tools \DCON_Utility_Pro							
FTP	http://ftp.icpdas.com.tw/pub/cd/winpac_am335x/wp-5231/system_disk/too ls/dcon_utility_pro							
For ICP	PDAS WES platform PAC							
CD	CD:\ XPAC\XPAC-Atom\tools\DCON_Utility_pro							
FTP	http://ftp.icpdas.com.tw/pub/cd/xpac-atom/tools/dcon_utility_pro/							

ICPDAS PAC and OS relation table:

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

DCON Utility Pro is developed by Microsoft Visual Studio C#, it needs to install

Microsoft .NET Framework 3.5 or later version, then it can work fine.

User can download it from below web site:

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

DCON Utility Pro is easily and more convenient to configure and test the I/O modules via the serial port (RS-232/485) or Ethernet port (using virtual com port).

Function table between DCON Utility Pro and DCON Utility:

	DCON Utility Pro	DCON Utility
Support most PC platform	Yes	Yes
Support ICPDAS WES platform	Yes	Yes
Support ICPDAS CE platform	Yes	No
Support I/O Module and Unit	Yes	Yes
Support new I/O Module and Unit in the future	Yes	No
Configuration module	Yes	Yes
Fast configuration plurality modules	Yes	No
Data Logger	Yes	Yes
command test terminal	Yes	Yes

Feature:

• Support DCON and Modbus: DCON Utility Pro can support DCON and Modbus protocol for all ICPDAS and the others modules. It can select multi-options such as BaudRate, Checksum, Format and etc options for search module.

📕 DCON Utility Pro Ve	ersion 2.0.0.0 for V	/ES Platform				
	II 🛠]]] ?			
Start Address	1 End	Address 8	3			
ID Addres	s Baud Rate	Checksum	Format Status	De	scription	
Comport Option				×		
COM F COM1[Backpla		Timeo 200	ms			
Baud Rate	Protocol Ch	ecksum Fo	rmat			
₽ 11520	57600	38400	□ 19200			
9600	4800	2400	□ 1200			
ОК	Cancel					

• Support rich I/O modules: Please refer description on below support module part

EDCON Utility Pro V	ersion 2.0.0.0 f	or PC Platform					×
	II 🛠			?			
Start Address	0 End	Address	255				
Address	Baud Rate	Checksum	Format	Status	Des	ription	
87024 0[0h]	115200	Disable	N,8,1			DN]4*AO (mA,V)	
7052 5[5h]	115200	Disable	N,8,1		[Mo	dbus RTV]8*DI	
COM:,1[N,8,1] A	vddress:6[06	hj Baud F	late:9600) Checksum	:Disable		1.

• Configuration module: DCON Utility Pro can configuration and test all modules, and it also can fast configuration plurality modules.

-	Start Addr		0 End	Address	255			
r	7061	Address 1[1h]	Baud Rate	Checksum Disable	Format N,8,1	Status Remote I/O	Description [Modbus RTU]12*DO	
	7001 7061 Firm			Disable	14,0,1	Keniote 170		1
ľ	Configuration	_	Host WDT Even	nt Log About	1			
	Protocol		Modbus R TU	•				
	Address		1 +	01H				
	Baud Rate		9600	-				
	Parity		N,8,1-None Parit	y 🔽				
	Checksum		Disable	Y				
	Response Del	lay	0		Set Mo	odule Configurations	;	
	Exit	1						
							//	

 Backup and restore configuration for I-87K I/O module on CE/WES backplane slot. More description about this function, please refer use mamual: ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility_pro/

🛢 DCON Utility Pro Version	2.0.0.0 for WES Platform				×
₹ ▶ 1		1 🗊 🛛			
Start Address 1	Auto Conhess Clan For	Backplane I-87K I/O			×
ID Address I	Auto Configuration Event L	.og About			
8014 Slot2 - 87024C Slot3	Restore 1/0	Slot C	onfigured Status	Scaned I/0	c
87018 Slot4 : 87026P Slot5 :	Load S	Slot: 1	-	Empty	
8064 Slot6 -		Slot:2	8.	Empty	
	Load S	Slot: 3	-	87024C	
	Load S	Glot: Open			? 🔀
	Load S	Slot: Look in	auto_config	💌 G 💋	• 📂 🛄 •
	Load S	ilot:	352_87019Z 353_87024C		
	Load S	GIOT: My Recent Documents			
		Desktop			
	Exit	Set My Documents			
	T:\ftproot\hans\WES\auto_Co	onfig\ My Computer			
		My Network	File name: Files of type: INI File	s (*.ini)	V Open Cancel

• Quick configuration for remote I/O module on all PC/CE/WES platforms

DCON Utility Pro Version 2.0.0.0 for PC Platform	n		x
	?		
Start Address 0 End Address	200		
ID Address Baud Rate Checksum 87057 0[0h] 115200 Disr Je	Format Status N.8.1	Description [DCON]16*DO	
87037 U[01] 113200 Disple	N,8,1	[DCON]19.DO	
Remote I/O Configuration		×	
Auto Configuration About			
COM Port COM3	nake sure the INIT* is connect	red to GND	
Configure as Factory Default	87057 • C 7K • 87K		
Configure I/O by File			
	Error Operation	×	
	Module Address is not 0,		
	Module INIT* switch is not at Init side, or INIT* is not connected to GND.		
	Please set INIT* switch to Init side or c And reset the power.	onnected to GND	
	催定		
Exit			
		11.	

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

DCON Uti	lity Pro Version 2.0	.0.0 for PC Platform				×
1		× 🔄 🕻	?			
Start Addr	ress 0	End Address 255				
ID	Address Baud Ra			Descriptio		
87057 87028C	0[0h] 115200 3[3h] 115200			[DCON]16 [DCON]8*		
	Tool for Comm	and Data Logger			. ,	×
	Edit Command D	ata Logger About				
	COM Port	COM Port	COM3 💌	Load	Cmd0=>\$00M Cmd1=>\$00M	
	COM3	Protocol	DCON -	LUau	Cmd2=>\$03M	
	Start Search	Baud Rate	115200 -	Remove	Cmd3=>\$03M [4]\$03F=>!03	
	AA[0],87057 AA[3],87028C	Data Format	N,8,1 •	Add >>		
		Checksum	Disable 🔻			
		Address	3[03h]	Modify		
		Timeout (ms)	200(ms) •	Save		
		Delay for Next (ms)	200(ms) •	Dave		
COM:3[N,8		Command Reference	Get Firmware	•		
		Send Command	\$03F			
		Compared Response	103			
		Compare Mode	Partial Match			
		Compare Mode	Farnar Match			
					T	V
	1					
	Stop Data Logger COM	4 Port 3 Closed				11.

	Tool for Command Data Logger X Edit Command Data Logger								
Start			🗹 Log To File	🗆 Log Erro	r Only	Logger5_	27_13.csv	•	View
00M 00M3 00M3 00M3 00M3 00M3 00M3	Command \$00M @00AA55 @00 \$01M #010+01 \$0180	Response Data 10187057 >> >AA55 10187028C 10187028C 10187028C	Compared Data 10187057 > >AA55 10187028C 1 101	Response. 0 0 0 0 0 0 0	. Result True True True True False True	Sent 4 4 4 4 4 4 4	Error 0 0 0 1 0	0 0 0 0 0 0 0 0	
	efault Name Logger_mm	_dd_hh.csv styl	Saved File M e) Interval to Cl		ame	Overwri 1 Hr	te 💌		
Stop Data Log	ger COM Port	3 Closed							11

• Terminal: for some situation users would want to use command to test module's function diretly.

EDCON Utility Pre Start Address D Addre 87057 2[2h]	0 Enc	for PC Platform	< I
	Tool for Terminal COM Port Baud Rate Checksum Timeout Command Response	Command Image: Command interview of the command in	
COM:3[N,8,1] ب		下午 03:02 :: [\$02M]; [10287057]; [15 ms]==> (NoError)	11.

Support Module:

I/O Module and Unit	Communication interface	
I-7000,M-7000, and tM series module	RS-485 Remote /O module	
I-8K module	Parallel Bus I/O module	
I-87K module	RS-485 I/O module	
ZT series module	ZigBee I/O module	
LC and DALI series module	Lighting Control and DALI Gateway module	
DL series module	DL I/O module	
RU-87Pn, USB-87Pn, ET-87Pn and	Remote I/O Expansion Unit	
I-87Kn Unit		
I-8410, I-8810, I-8430, I-8830, I-8KE4	Slave MiniOS7 I/O Unit	
and I-8KE8 Slave I/O Unit		

For more detailed information about I/O modules and Units, please refer http://www.icpdas.com/root/product/solutions/remote_io/remote_io_products.html

Chapter 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: <u>http://www.icpdas.com/products/Accessories/power_supply/power_list.htm</u>

- 1. The power supply must be DC power between +10V to +30V.
- 2. Wiring: +Vs connects to +Vs; GND connects to GND.
- 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.
 Total watts = Σ(supplied Voltage)*(Ampere consumed)

2.2. Search I/O with DCON Utility pro

DCON Utility Pro is a program based on Serial interface I/O modules, it can search modules for DCON, Modbus RTU and Modbus ASCII protocol. It is also support Baud rate, Checksum and Parity parameter for search modules.

2.2.1. Choose the COM port and parameters for search

• Select COM Port for Backplane on ICPDAS PAC:

DCON Utility Pro Version 2.0	.0.0 for WES Platform		
I	* 🔄 🗉] 🗾	
Start Address 1	End Address 8		
ID Address Bau	d Rate Checksum	Format Status	Description
Comport Option COM Port COM1[Backplane]		ut ms	1
	200		
Baud Rate Protoc	col Checksum For	mat	
☑ 11520 🔲 5	7600 🔲 38400	□ 19200	
9600 □ 4	800 🗆 2400	□ 1200	
ОКСа	ancel		

• Select COM Port for PC or the others industry computer:

	Utility Pro	II 🛠				?	<u>×</u>
	Address		Address Checksum	255 Format	Status		Description
ID		> Bauu Kate		Format	<u> Status</u>		Description
Comport	t Option					×	
	COMPO	ort	Timec	ut			
COM:	12	-	200	ms			
			· ·				
Bau	d Rate 🛛 F	rotocol Ch	ecksum Fo	rmat			
V	11520	□ 57600	38400	🗆 19	200		
	9600	□ 4800	□ 2400	□ 12	00		
	1						
	ОК	Cancel					
							isable //

• User can select multi-protocol, Baud rate, checksum and Format for search both DCON and Modbus modules in the RS-485 Network as below:

Comport Option	×
COM Port	Timeout
COM1 ·	200 ms
Baud Rate Protocol C	necksum Format
	lodbus RTU 🔽 Modbus ASCII
OK Cancel	

• The result of search module:

Start Address 0 End Address 255	×
ID Address Baud Rate Checksum Format Status Description 87024 0[0h] 115200 Disable N,8,1 [DCON]4*AO (mA,V) 7052 5[5h] 115200 Disable N,8,1 [Modbus RTU]8*DI	
COM:,1[N,8,1] Address:6[06h] Baud Rate:9600 Checksum:Disable	-

If the response may have many characters or the module use low speed baud rate, it is better to increase the timeout setting.

2.2.2. Find modules out and click module name for configuration

- DCON Utility Pro ¥ 2.0.0.0 × Start Address 255 Ю End Address Address Baud Rate Checksum Format Status Description 7061 [Modbus RTU]12*DO 1[1h] 9600 Disable N,8,1 Remote I/O COM:12[N,8,1] || Address:130[82h] || Baud Rate:9600 || Checksum:Enable
- Click button for starting to search modules, it will find modules out as below:

It will show what COM Port and parameter for search as above status. If users can't find modules out, please check hardware or refer chapter 2.3 Searching Principles for search modules

(If user can't find modules out, refer chapter 2.3 Searching Principles.)

Click module name to enter configuration form	
---	--

Start Add	dress	0 End.	Address	255				
T	Address	Baud Rate	Checksum	Format	Status	Description		
7061	1[1h]	9600	Disable	N,8,1	Remote I/O	[Modbus RTU]1	2*DO	
18 7061 Fin	mware[0200	0]					×	
Configuratio	m DO	Host WDT Even	t Log About	1				
Protocol		Modbus R TU	-					
Address		1 -	01H					
Baud Rate		9600	•					
Parity		N,8,1-None Parity	r 🔻					
Checksum		Disable	~					
		,						
				Sot M	odule Configur	ations		
Response D	elay	p		Set M		ations		
Exit								
Exat								
							11	

More detail information about configuration I/O modules, please refer Chapter 3 Configuration for I/O modules

2.3. Solve "can't find module" problem

When use DCON Utility, the most and first problem is that 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.

Before refer below case, please confirm the Hardware and wirings are all normal.

- Case 1: Use not ICPDAS converter: Refer chapter 2.3.3
- Case 2: Sometimes can find modules and sometimes can't: Refer chapter 2.3.1 and 2.3.3
- Case 3: Some modules can find and some modules can't: Refer chapter 2.3.2
- Case 4: After settings, DCON Utility can't find module. Refer chapter 2.3.1 and 2.3.2
- Case 5: Not ever find modules out. Refer chapter 2.3.1, 2.3.2 and 2.3.3

2.3.1. Search one by one for factory default setting modules

If there are more than 2 modules with factory default settings, it needs to search and configure the I/O one by one. (In RS-485 network, there are can't have two or more modules that with the same communication parameters or it will caused some error, like communication fault, sometime normal sometimes abnormal.)

When all modules finish configuration with difference communication parameters, then user can use all of modules together.

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

	i-7000	M-7000 and tM series	87K and the other I/O module
Address	1	1	1
Baud rate	9600	9600	115200
Checksum	Disabled	Not defined	Disabled
Protocol	DCON Protocol	Modbus Protocol	DCON Protocol

2.3.2. Init Mode for unknown settings modules

If I/O module with unknown communication parameters, user can set it t 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.

	i-7000, M-7000 and tM modules	87K and the other I/O module
Address	0	0
Baud rate	9600	115200
Checksum	Disabled	Disabled
Protocol	DCON Protocol	DCON Protocol

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

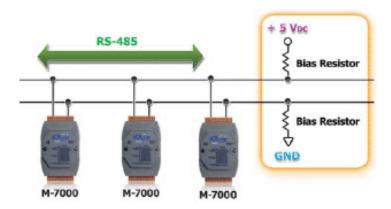
Note: The default settings and initial settings are different.

Note: The i-8000 system cannot power on with INIT* connect to INIT*COM to get the default communication setting, because when INIT* connect to INIT*COM, the firmware cannot be auto executed by the MiniOS7.

If the wirings are correctly connected and communication parameters are correct too. Then clicks start searching.

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

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:

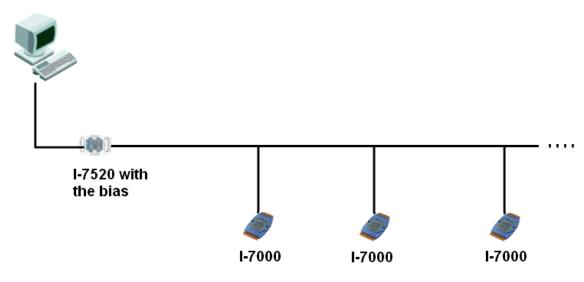
- 1. Can't communicate with I/O modules.
- 2. Modules work normal last time, and work abnormal this time.
- 3. Some/Sometimes modules work normal, some/sometimes modules work abnormal.

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_comm unication_products.html#Converter



2. 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-s g4.html

SG-785:

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

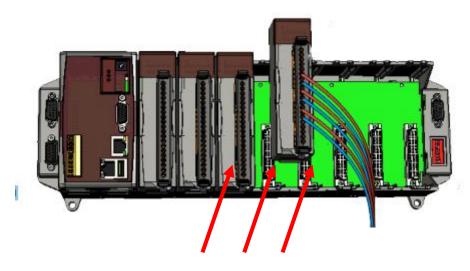




Chapter 3. Configure and test the I/O modules.

ICPDAS provides lots of I/O for industrial monitoring and controlling applications. Before user starts his/her applications, modules need to configure to suit settings. User also can use DCON Utility for test I/O function. There are two different kinds for configuration and test I/O as below:

There are some I/O expansion slots on ICPDAS PAC, it can plug in both I-8K and I-87K module on it as below. DCON Utility pro can support to configuration and test for those I/O modules.



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

Remote I/O: Support most Remote I/O Modules and Units. Please refer
 (<u>http://www.icpdas.com/root/product/solutions/remote_io/remote_io_products.html</u>)

It is include I/O on COM port of PC, Laptop and etc industry computer. It is also include I/O on COM Port in addition to I/O expansion slots of ICPDAS PAC.



It is support all kind of remote I/O modules and Units.

The support module between two kinds as below:

Support Module			
I/O expansion slots on ICPDAS PAC	Remote I/O Modules and Units		
	I-7000,M-7000, and tM series I/O		
	ZT series Zigbee I/O		
I-8K and I-87K modules	DGW-521 and LC series light controller I/O		
	I-87K on I-87Kn, RU-87Pn, USB-87Pn and		
	ET-87Pn Expansion Unit		
	I-7K.I-8K and I-87K on I-8KEn Ethernet I/O		

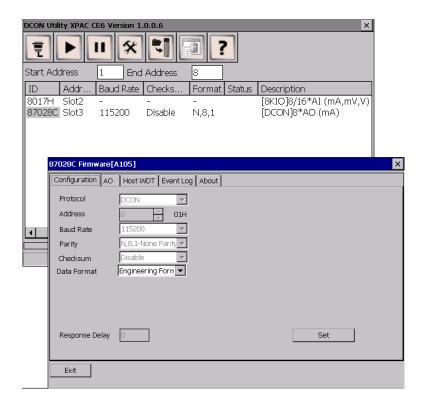
If user only needs to configure a module, user can click module name to do it then click "Set Module Configurations" to set it, then configuration will save to modules as below:

1	DCON Utility Pro V	ersion 2.0.0.0 for P	PC Platform			x
		II 🛠 🛛	3	?		
\$	Start Address	0 End Ad	ddress 255			
14	Address		hecksum Format	Status	Description	
	87057 0[0h]		Disable N,8,1		[DCON]16*DO	
L	87057 Firmware[A2				×	
	Configuration DO	About				
	Protocol(INIT*)	DCON	•			
	Address		(00H]			
	Baud Rate(INIT*)	115200	•			
	Parity(INIT*)	N,8,1-None Parity				
	Checksum(INIT*)	Disable				
	Checkson(INT1-)	1				
			Casha	odule Configurations		//
	Response Delay	0	Set Mo	odule configurations		
1	Exit					
					//.	

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

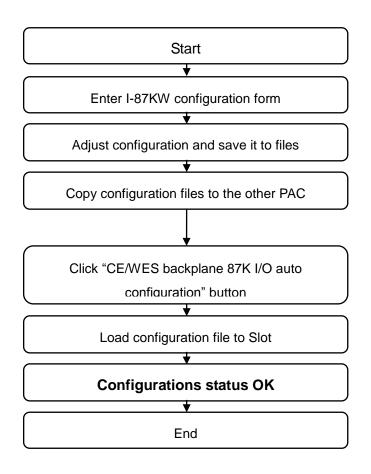
- DCON Utility XPAC CE6 Version 1.0.0.6 × × н ? ŧ ► 2 Start Address 1 End Address 8 Baud Rate Checks. Format Status Description ID Addr.. 8017H Slot2 87028C Slot3 [8KIO]8/16*AI (mA,mV,V) 115200 Disable N,8,1 [DCON]8*AO (mA) 8017H × I-8017HW Slot Index 2 Basic Information AI Test Library Version 217 Refresh Firmware 9 Save Single-Ended/Differential Differential • +/- 10V Gain 32767 Offset -26 +/- 5V Gain 32770 Offset -27 +/- 2.5V Gain 33961 Offset -39 Wait for loadi +/- 1.25V Gain 33954 Offset -39 Offset -39 +/- 20mA Gain 33961
- I-8K module on ICPDAS PAC slot:

• I-87K module on ICPDAS PAC slot:



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.

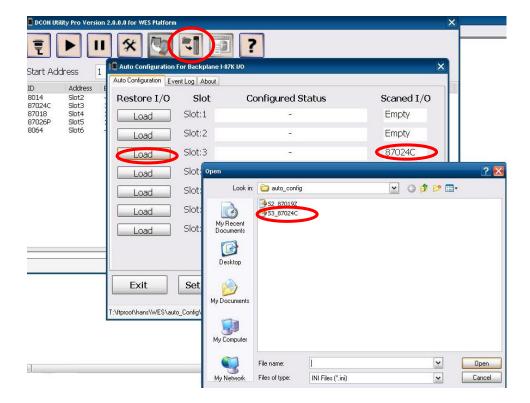
Step 1: Click module name to enter configuration form and write configuration, then save configuration to .ini file as below:

tart Address	1 End Address	8		
D Address	Baud Rate Checksur	n Format Statu	Comments of the Configured File	
7024C 9ot3 7010 Slot4 7026P Slot5	115200 Disable 115200 Disable 115200 Disable	N,8,1 N,8,1 N,8,1	Date Time=5/23/2014 Description=87024C	
064 Slot6		-S		
18 87024C Firmwar				
Configuration AD	Host WDT About		-	
Protocol(INIT*)	DCON 🔽			
Address	0 🗘 [00H]			
Baud Rate(INIT*)	115200 💟			
Parity(INIT*)	N.8,1-None Parity		Save As	Cancel
Checksum(INIT*)	Disable 🗸			
Data Format	Engineering Format 🖌			

User can configure all I-87KW modules once on every slot. Copy .ini file to the others PAC for load configuration from file without do it again and again on the others PAC.

Step 2: Click "CE/WES backplane 87K I/O auto configuration" button.

Load file for configuration modules without setting it.



Step 3: 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.

Start Ad	ldress 1	Auto Configuration	For Backplane I-8 ent Log About	7K 1/0	
ID Address B 8014 Slot2 - 87024C Slot3		Slot	Configured Status	Scaned I/O	
7024C 7018 7026P	Slot3 : Slot4 : Slot5 :	Load	Slot:1		Empty
064	Slot6 -	Load	Slot:2	<u></u>	Empty
		Load	Slot:3	OK	87024C
		Load	Slot:4	Ξ.	87018
		Load	Slot:5	<i></i>	87026P
		Load	Slot:6	-	Empty
		Load	Slot:7	÷.	Empty
		Exit	Set Auto	Configuration INI Path	

3.2. Configuration remote I/O module and Unit for PC

DCON Utility Pro Ver	rsion 2.0.0.0 for PC Platform	×
Start Address	D End Address 255	
ID Address	Baud Rate Checksum Format Status Description	I
87057 2[2h] 87057 4[4h]	115200 Disable N,8,1 [DCON]16*DO 115200 Disable N,8,1 [DCON]16*DO	
	18 87057 Firmware[A202]	×I
	Configuration DO About	
	Protocol(INIT*) DCON	
		I
	Baud Rate(INIT*) 115200	
	Parity(INIT*) N.8,1-None Parity 💌	
	Checksum(INIT*) Disable	I
		I
		I
		I
	Response Delay O Set Module Configurations	
	Response Delay 0 Set Module Configurations	
له		

Configuration I/O module on PC

If users want to backup I/O settings or need to configure larger amount modules with complex configurations, it will waste much time to configuration modules again and again for every module. User can follow below steps to save configuration to file for larger amount modules.

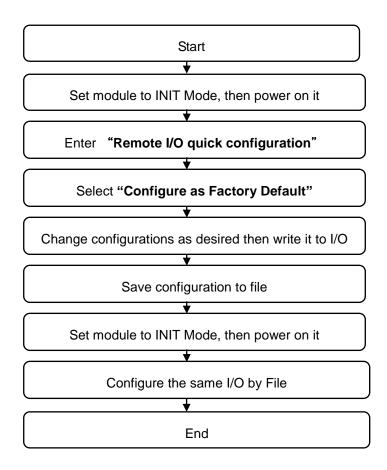
3.2.1. Quick Configuration for large amount modules

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.

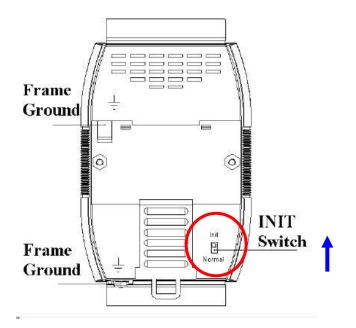
3.2.2. Save configurations to file and configure I/O by file

Steps for saving configurations to file, then users can finish it in the others time or place by load file to avoid to configure it again and again:

(This is suit on all parameter of configurations are the same.)



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



Step 2: Run DCON Utility and Click "Remote I/O quick Configuration" button.

Select COM Port and I/O then click "Configure as Factory Default":

If selected module is not in INIT Mode, DCON Utility will show error message as below:

CON Utility Pro Version 2.0.0.0 for PC Platform	x
Start Address 0 End Address 255	
ID Address Baud Rate necksum Format Status Description 87057 0[0h] 115200 isable N,8,1 [DCON]16*DO	
Remote I/O Configuration	1
Auto Configuration About	
COM Port COM3 Please make sure the INIT* is connected to GND	
Configure as Factory Default	
Configure I/O by File	
Error Operation	
Module Address is not 0, Module INIT* switch is not at Init side,	
or INIT*synch is not connected to GND, Please set INIT*synch to Initiate or connected to GND	
And reset the power.	
確定	
Exit	
li.	

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:

Step 3: Change the I/O configurations and Write Configurations to I/O modules.

Change configurations as desired then click "Write Configurations to I/O Module", DCON Utility will start sending configuration commands to module.

Remote I/O Configuration			×
Auto Configuration About			
COM Port COM3 Ple	ease make sure t	the INIT* is connected to GND	Configure 87057 OK
Configure as Factory Default	t 87057	О 7К © 87К	Setting Remote I/O Configurations OK: The INIT*Pin is commected to GND, Please do following st
Configure I/O by File	87057 Firmware	[A202] [Offline Configuration]	Step 1. Disconnect INIT* Fin from GND Fin. or adjust the Dip Switch to Normal side. Step 2. Power off then Fower on the module. Step 3. Search the module again.
	Configuration DO	About	[確定]
	Protocol(INIT*)	Deon	
	Address	2 📑 [02H]	T
	Baud Rate(INIT*)	115200	
	Parity(INIT*)	N,8,1-None Parity 💌	
	Checksum(INIT*)	Disable	
Exit			
			Save Configurations to the File
	Response Delay		Write Configurations to I/O Module

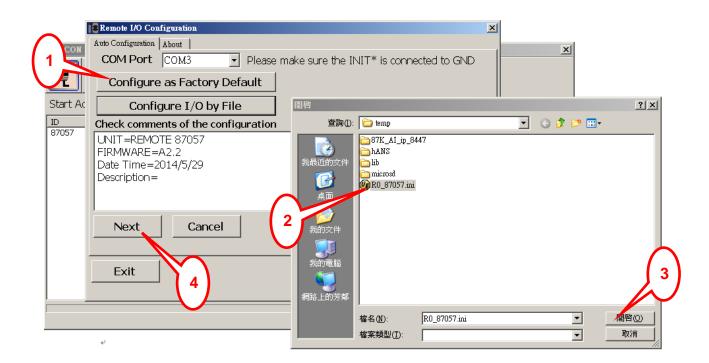
If commands are written to I/O module correctly, it shows a message box to inform it.

Step 4: Save Configuration to file.

Remote I/O Configuration	另存新者	<u>? ×</u>
Auto Configuration About	儲存於 (1): 🕒 我的文件 🗾 🕓 🎲 📁 🖽 -	
COM Port COM3 Please make sure the IN	Axialis Libiation	
Configure as Factory Default 87057 💽	武最近的文件 白ECR 御R0_87018 ini	
Configure I/O by File	mulators 👰 R0_87057.ini	
	→ My Received Files 局 我的文件 桌面 合 Source Insight 局 我的文件 (2)	
87057 Firmware[A202] [Offline Configurati	ion 我的文件 Gtmp	
Configuration DO About	Visual Studio 2005	
Protocol(INIT*) DCON	我的電腦 🦰 Visual Studio 2010	
Address 2 [02H]		
Baud Rate(INIT*) 115200	網路上的芳鄰	
Parity(INIT*) N,8,1-None Parity	檔名(LI): R0_87057.ini ▼	儲存(S)
Checksum(INIT*) Disable	存檔類型(①: ▼	取消
Exit		
	Save Configurations to the File	
Response Delay	Write Configurations to I/O Module	
+ ¹ Exit		
Configure 87057 OK >> Total Configure Command Cou	mt 13	
له له		

Step 5: Configure the same I/O modules by file

Refer Step 1 to switch module at "INIT Mode", click "Configure I/O by File" and select .ini file that Step 4 saved.



Click "Next" button to enter Offline configuration form of selected module

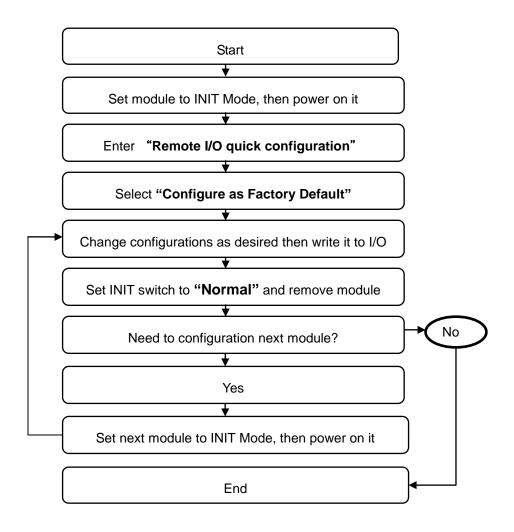
I	87057 Firmware 🗛	202] [Offline Configuration]	×
ľ	Configuration DO	About	
	Protocol(INIT*)	DCON	
	Address	1 • 01H	
	Baud Rate(INIT*)	115200	
	Parity(INIT*)	N,8,1-None Parity	
	Checksum(INIT*)	Disable	
		Save Configurations to the File	
	Demonstry Delver	Write Configurations to I/O Module	5
	Response Delay		
	Exit		
			//

If user needs to set many modules with the same configuration, please INIT module and set it as this step one by one.

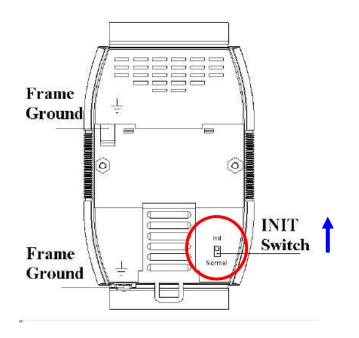
3.2.3. Write configuration to module using Offline

If users need to configure complex modules or larger amount modules as chapter 3.2.2.1, it will waste much time to configuration module again and again for every module. User can follow below steps to save time for configuration larger amount module.

Steps for writing configurations using Offline, then users can write configuration to module in INIT Mode. When customer needs to configure large amount modules with most the same configurations, it only needs to adjust the part of different configuration then saving it to the others module.

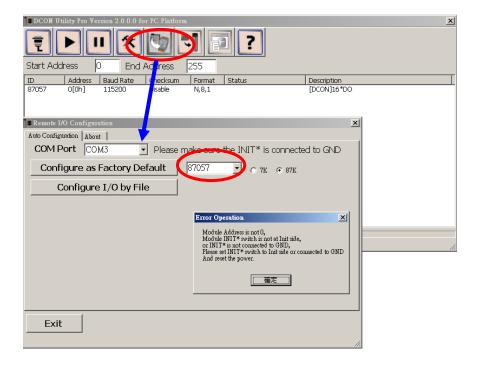


Step 1: Make sure the INIT switch set to "Init Mode" side, then power on the module.



Step 2: Run DCON Utility and Click "Remote I/O quick Configuration" button.

Select COM Port and I/O then click "Configure as Factory Default": If selected module is not in INIT Mode, DCON Utility will show error message as below:



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:

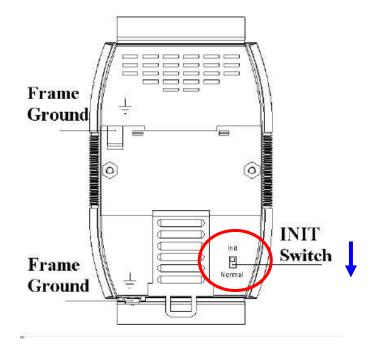
Step 3: Change the I/O configurations and Write Configurations to I/O modules.

Change configurations as desired then click "Write Configurations to I/O Module", DCON Utility will start sending configuration commands to module.

If commands are written to I/O module correctly, it shows a message box to inform it.

Remote I/O Configuration			×
Auto Configuration About			
· · · · · · · · · · · · · · · · · · ·			
COM Port COM3 Pla	ease make sure i	he INIT* is connected to GND	Configure 87057 OK
Configure as Factory Defaul	t 87057	C 7K ⊙ 87K	Setting Remote I/O Configurations OK: The INIT*Pin is commected to GND, Please do following st
Configure I/O by File	8705 , Firmware	[A202] [Offline Configuration]	Step1. Disconnect INIT*Pin from GND Pin. or adjust the Dip Switch to Normal side. Step2. Power off then Power on the module. Step3. Search the module again.
	Configuration DO	About	[]
	Protocol(INIT*)	Deen 🗸	
	Address	2 🔁 [02H]	T
	Baud Rate(INIT*)	115000	
	Parity(INIT*)	N,8,1-None Parity	
	Checksum(INIT*)	Disable	
Exit			
			Save Configura <mark>ions to the File</mark>
	Response Delay		Write Configurations to I/O Module

Step 4: Set INIT switch to "Normal" and remove finished module



Note: 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 5: configuration next module

Repeat step 1 to switch module to "Init Mode" then power on module.

You can use configurations as step 3 and adjust different parameters (for example only adjust address), then "Write configuration to I/O Module" for the others modules.

User can repeat this step to configuration all modules without adjust all configuration again and again for all modules. It is convenient for configurations larger amount modules or complex modules.

87057 Firmware[A202] [Offline Configuration]		×
Configuration DO About	Configure 87057 OK],
Protocol(INIT*) Address Baud Rate(INIT*) Parity(INIT*) Checksum(INIT*) DCON IDCO	Setting Remote I/O Configurations OK: The INIT* Fin is commected to GND, Please do following steps Step1. Disconnect INIT* Fin from GND Fin. or adjust the Dip Switch to Normal side. Step2. Fower off then Fower on the module. Step3. Search the module again.	
Response Delay	Save Configurations to I/O Module	
Configure 87057 OK=>Total Configure Command Count 13		11.

Step 6: Search the I/O module and verify the configuration result.

DCON Utility Pro Ver	rsion 2.0.0.0 for PC Pl	atform			x
	I 🛠 🐚		?		
Start Address	D End Addre	ss 255			
Autoress	Baud Rate Check		Status	Description	
87057 2[2h] 87057 4[4h]	11,200 Disable 11,200 Disable			[DCON]16*DO [DCON]16*DO	
	87057 Firmware[A	202]			×
	Configuration DO	About			
	Protocol(INIT*)	DCON	-		
	Address	2 🔹 🕻	02H]		
	Baud Rate(INIT*)	115200	•		
	Parity(INIT*)	N,8,1-None Parity	Y		
	Checksum(INIT*)	Disable	•		
P	P P1	0	Set Mo	dule Configurations	
	Response Delay	<u>l</u> o		dure contrigui actoris	
له					

Chapter 4. Tools of DCON Utility Pro

There are some tools to help customer test serial I/O module as below:

4.1 Data Log function

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

Step 1: Click Data Logger button then click Start Search to search module.

It will found module out as below:

DCON Util	lity Pro Version 2.0).0.0 for PC Platform				×
1		* 🔄 🤇				
Start Addr	ess 0	End Address 255				
ID	Address Baud R			Description		
87057 87028C	0[0h] 11520 3[3h] 11520			[DCON]16 [DCON]8*		
	18 Tool for Comm	nand Data Logger				×
	Edit Command	Data Logger About				
	COM Port COM3	COM Port	COM3 🔹	Load	Cmd0=>\$00M Cmd1=>\$00M	
		Protocol	DCON 💌		Cmd2=>\$03M Cmd3=>\$03M	
	Start Search AA[0],87057	Baud Rate	115200 💌	Remove	[4]\$03F=>103	
	AA[3],87028C	Data Format	N,8,1 💌	Add >>		
		Checksum	Disable 💌			
		Address	3[03h] 💌	Modify		
		Timeout (ms)	200(ms) 💌	Save		
		Delay for Next (ms)	200(ms) 💌			
COM:3[N,8		Command Reference	Get Firmware	•		
		Send Command	\$03F			
		Compared Response	103			
		Compare Mode	Partial Match	•		
					_	_
					•	
	Stop Data Logger CO	M Port 3 Closed				11

Step 2: Select one module, then it will show all commands for this module.

Edit Command Dat		2
COM Port COM3	COM Port Protocol Baud Rate Data Format Checksum Address Timeout (ms) Delay for Next (ms)	COM3 Load DCON Remove 115200 Add >> Disable Modify 0100h Modify 200(ms) Save
	Command Reference Send Command Compared Response Compare Mode	Get Module Name Get Module Name Get Firmware Get Module Configure Set Module Configure Write DO Write DO Bit 0 Write DO Bit 1

Step 3: Select command, compare Mode and input compared response, then click "Add".

It will add one command for data logger.

📳 Tool for Comma	nd Data Logger	<u><</u>	K
Edit Command Da	ta Logger About		
COM Port	COM Port	COM3 Load 101\$00M=>87057	
COM3 💌	Protocol	DCON V	
Start Search AA[0],87057	Baud Rate	115200 Remove	
AA[1],87028C	Data Format	N,8,1 Add >>	
	Checksum	Disable	
	Address	0[00h] Modify	
	Timeout (ms)	200(ms) Save	
	Delay for Next (ms)	200(ms)	
	Command Reference	Get Module Name	
	Send Command	\$00M	
	Compared Response	87057	
	Compare Mode	Partial Match Full Match Data Length (Without CR) Partial Match None	

Step 4: User can add commands on different modules for data logger, it can save to file for load it from another place.

Edit Command Date		-	-		×			
COM Port COM3 Start Search AA[0],87057 AA[1],87028C	ALOzzer About COM Port Protocol Baud Rate Data Format Checksum	COM3 • DCON • 115200 • N,8,1 • Disable •	Load Remove Add >>	10900M=>10187057 11900A455=>>> 21900=>>A55 19001=>1087028C (1月4010-01.000=>1 (5190180=>101 男子折着		ابر بر ا		? X
	Address Timeout (ms) Delay for Next (ms) Command Reference Send Command Compared Response Compare Mode	1[01h] 200(ms) 200(ms) 200(ms) Read AO 0 \$0180 01.000 Partial Match	Modify Save	 儲存於①: Cond_ 我最近的文件 我最近的文件 		G	1 🦻 🖻 🎛 -	
Stop Data Logger COM I	Port 3 Closed			第約電腦 第約電腦 約路上的芳郎 都名(D): 存檔類型(jatalogees D:		•	儲存③ 取消

Step 5: Select "Data Logger" tab and select some option about data logger.

Edit Command Data Logger About									
Start	Stop	D Pause 🛛 🕅	🛛 Log To File	🗆 Log Error	Only	Logger5_2	7_13.csv	💌 Vie	w
COM COM3 COM3 COM3 COM3 COM3 COM3	Command \$00M @00AA55 @00 \$01M #010+01 \$0180	Response Data 101 87057 > >AA55 101 87028C 101 87028C 101 87028C	Compared Data 10187057 > >AA55 10187028C 1 101	Response 0 0 0 0 0 0	Result True True True True False True	Sent 4 4 4 4 4 4 4 4	Error 0 0 0 1 0	Timeout 0 0 0 0 0 0 0 0 0 0 0 0	
✓ Use Default Name Default(Logger_mm_dd_hh.csv style)			_	Saved File Mode Interval to Change File Name			▼ ▼		

Click "Start" to start data logger, user can review the result as below:

For long term test, the result will save at .csv file. User can open it as Microsoft Excel for trace data.

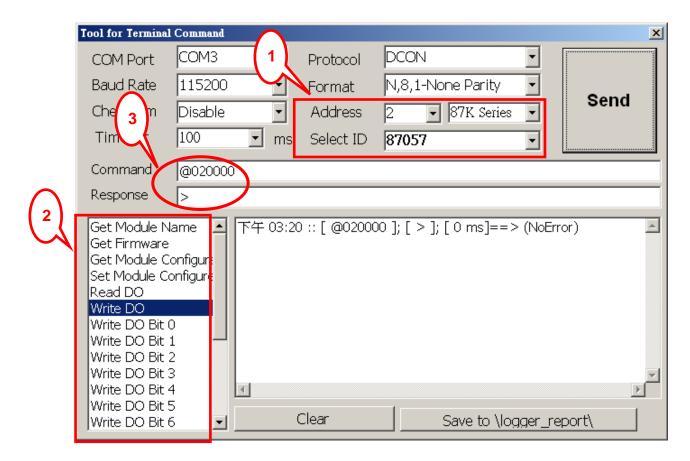
4.2 Command Line Tool

Command Line Tool can be used as a basic test and debug tool for I/O modules, it supports DCON, Modbus RTU and Modbus ASCII Protocols.

- **Step 1:** Click command line button to enter below "Tool for Terminal Command" form. User needs to select correctly communication protocol parameters for sending commands then modules will have response or it will be response timeout. (User can use search to find module out, then accord its communication protocol parameters to select it.)
- Step 2: User can send command directly as below (For example send "\$02M" to read module name of I-87057W module.)
- Step 3: Click send and it will response !0287057 as below:

DCON Utility Pro	o ¥ersion 2.0.0.0	for PC Platfo	rm				×
	ПХ			?			
Start Address	0 End	l Address	255				
ID (Addre 87057 2[2h]		Checksum Disable	Rarmat N,8,1	Status	Description [DCON]16*D0	0	
	Tool for Terminal	Command					⊻ 3
$\left \bigcap_{i} \right $	COM Port	СОМЗ	•	Protocol	DCON		
	Baud Rate	115200	-	Format	N,8,1-None Parity		
	Checksum	Disable	•	Address	1 💌 87K Series	Send ⊡	/
	Timeout	100	💌 ms	Select ID			
	Command	\$02M					
2	esponse 🧲	10287057	>				
			下午 03:02	2 :: [\$02M]	; [!0287057]; [15 ms]=	==> (NoError)	
COM:3[N,8,1]							
نه							
сь С							

Step 4: If user doesn't know command, user can select Address and ID, it will show some refer commands as below. User can select necessary command to test or debug modules.



Step 5: Click "Save to \logger_report\", it can save test commands to file for reference, it will be named by Command_Line_Result_Log_xx_xx_XX.txt as below:

<mark>▶ Command_Line_Result_Log_5_28_15_25.txt</mark> 檔案 (P) 編輯 (E) 格式 (Q) 檢視 (V) 說明 (H)	<u>-0×</u>
Event -> 03:20 :: [@020000]; [>]; [0 ms]==> (NoError) Event -> 03:25 :: [@02]; [>0000]; [0 ms]==> (NoError) Event -> 03:25 :: [\$022]; [!02400A00]; [0 ms]==> (NoError)	ror)
•	▼ ▶ //

Appendix.

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