DCON Utility

User's Manual

Version 1.1, April 2006



ICP DAS, Co., LTD www.icpdas.com

DCON Utility User's manual, April 2006, Version 1.1

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Chapter1. Introduction

The DCON Utility is a toolkit that help user to search the network, easily to configure and test the I/O modules via the serial port (RS-232/485) or Ethernet port (using virtual com port). It also helps to configure the i-87K I/O modules on WinCon 8000 system. It supports not only the DCON Protocol I/O modules but also the M Series I/O Modules (Modbus RTU M-7K,M-87K) and will support Modbus ASCII M-87K in the future.

k	🖉 DCON Utility Ver. 4.4.0							
Ī	<u>File COM Port Search Run Terminal Help</u>							
ſ	The I/O Modules Found							
	Module	Address	Baudrate	Alarm	Checksum	Description		
	7041 87082 8810 8080 8013(87K) 8064 8017H 8057(87K)	2[2] 2[2] 3[3] 50 51 52 53 53 54	9600 115200 9600 9600 9600 9600 9600 9600	3	Disable Disable Disable Disable Disable Disable Disable Disable	14*DI(DCON) 2*Counter/Frequency + 2*D0(DCON) 8*Slot Serial I/O Unit(DCON) 8*Counter/Frequency 4*AI (RTD) 8*D0 8*AI High Speed Differential Anolog Input(mA,mV,V) 16*D0	ini.	
	<					>		
	- Searching COM Port:	Status: COM 1	Address:	10[dec]	Afhex	Baud Rate: 9600	~	
						A.M 10:32	1	

For DCON Utility version information and supported module list, please refer to ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/

CD:\ Napdos\Driver\DCON Utility

To update the DCON Utility, please refer to ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/setup/

Note: Sometimes there will be a problem to cause a Run Time Error Message as below.

tility
Run-time error '372': Failed to load control 'CommonDialog' from COMDLG32.0CX. Your version of COMDLG32.0CX may be outdated. Make sure you are using the version of the control that was provided with your application.

This error is caused by the different version of ocx, because there is another copy at the path of system32.

- 1. Please find the ocx file in system32 and backup the ocx to another folder.
- 2. Copy the ocx that in the DCON Utility installed path to system 32.
- 3. Run the DCON Utility again.

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Chapter2. The Wirings of I/O modules

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

2.1 Power Supplier:



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.
- Total watts = Σ (supplied Voltage)*(Ampere consumed)

2.2 The Wirings:

2.2.1 i-7000 and M-7000 series:

i-7000 I/O modules and M-7000 I/O modules are typical **distributed remote I/O modules** and support only **RS-485** interface.



2.2.2 i-87K I/O Expansion with i-87K and M-87K series I/O modules:

The only communication interface of i-87K I/O Expansion is its **RS-485** port. i-87K I/O Expansion unit is a convenient and compact plastic housing which only equipped one power module, one RS-485 interface and several I/O slots. It is used to expand I/O modules via the RS-485 interface. Only i-87K and M-87K series I/O modules can plug in this unit.



2.2.3 i-8410, i-8810, i-8411 and i-8811 Serial I/O Units:

The **DCON_nnn.exe** is the default DCON firmware running on i-8410, i-8810, i-8411 and i-8811 and it can choice RS-232(COM1 port) or RS-485 (COM2 port) as its communication interface.

Note: User can not use the RS-232 and RS-485 at the same time.

RS-232 interface:

The RS-232 interface also can be used as the communication interface, but for the **short transmitting distance** of **RS-232**, it usually used in development stage to configure and test the I/O modules.



RS-485 Interface:



RS-485 is the most popular and basic communication interface in industry.

Generally, the host PC needs a **RS-232 to RS-485 converter (i-7520)** to convert the RS-232 electrical signal to RS-485.

Some industrial computers have RS-485 interface, they do not need i-7520 converter. But ICP DAS's 7520 series have the ability on **auto tuning** the different baud rates, this is the advantage when the network exists modules with different baud rates.

For more detail about the converter selection guide, please refer to: <u>http://www.icpdas.com/products/Industrial/communication_module/communication_list.htm</u>

For using the i-7520, please refer to: http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/7000/manual/7520.pdf

2.2.4 i-8430, i-8830, i-8431, i-8831, i-8KE4 and i-8KE8 Ethernet I/O unit :

This application only applies to DCON Utility with DCON Firmware **E10M_nnn.exe** running on i-8000 Ethernet I/O unit. The E10M_nnn.exe can support both **Ethernet port** and **RS-232 port**.

Note: User can not use the RS-232 and RS-485 at the same time.

RS-232 interface:

The RS-232 interface also can be used as the communication interface, but for the short transmitting distance of RS-232, it usually used in development stage to configure and test the I/O modules.



Ethernet interface:



DCON Utility is a **program** using the **COM port** as its **communication interface**. When DCON Utility wants to communicate with the remote the Ethernet I/O unit, the host PC has to install **VxComm utility** and assigned a COM port to map the port **I/O(9999)** of i-8000 Ethernet I/O unit. And the remote Ethernet I/O must support **XServer** to have the **virtual COM port's** function.

✓ YxComm Utility [v2.8.9, Mar.09, File Server Port Iools 7188E/8000E I IP : 1008109 IP : 1008109 IP : Check Dupl	(intermet/Ethermet Corr Port : 100 incated IP 🔽 Connec	utroller 00 Timeout () :t to Server	ns) 5000 Add Server	DCON Utility can search the i-8000 Ethernet I/O unit by using the VxComm technology
8831 (10.0.8.109)	Port Port 1/0	COM COM10	Baudrate	
	Port 10 Port 1 Port 3 Port 4	UnMap COM11 UnMap	Pixea Dynamic Dynamic Dynamic	By using the VxComm technology,DCON Utility can also search the remote RS-485 network via Ethernet interface with i-8000 Ethernet I/O unit's COM3 port.
Server Options Remove	Server		Exit	

a been	Eslay Yer 4.40	
Bir COM	Port Dearth Zon, Jermanni Help	
The LO	Modelsh's Formal	
	Industrial Industrial Angen Department Council Control Co	
654	51 960 Deate 3201 57 960 Deate 3201	
Sec. 10 10 10 10 10 10 10 10 10 10 10 10 10	53 9600 Diodde 16/00 (371) 54 9600 Diodde 9/V (n/k.si/V.7 hemocouple)	
	1 55 9600 Disable 6'00 (DN) 57 9620 Disable 4'NO (eA/V)	
See	Ching Status Post Private Address Entered Titlesoft Band Rate Toppin	
	Second Second	
	78.0	
Inductrial I	Sthormot Switch Hub	
Industrial I	unernet Switch Hub	
Internet		
γ		
\sim	T 10kon 1-8531	
	Server Barris Contraction of the server se	8
		2
100 1		
-		
	ATTAIN AND AND AND AND AND AND AND AND AND AN	3
Industrial Ethernet Switch Hub		
	i-8000 Ethernet I/O Unit with E10M nnn eve	
	1-0000 Enternet 1/O Onit with ETOWI_Innit.exc	
	DCON Firmware	

By using the VxComm technology, DCON Utility can search the DCON Protocol I/O modules via Ethernet Interface.

For VxComm technique, please refer to <u>ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/dcon/8430_8830/documents/</u> or CD:\ Napdos\DCON\8430_8830\Documents 8430_8830_8KE4_8KE8_Manual.pdf (Chapter 2 and Chapter 3)

2.2.5 i-7188EF-016:

This application only applies to DCON Utility with Firmware **EF016nnn.exe** running on i-7188EF-016.



COM1 port of 7188EF-016 is used as the command port to download the firmware, and the CA0910 is the default cable between PC's COM port and COM1 port of 7188EF-016.

the wiring of CA0910 Labels must be as below:

RX ←→RXD

TX←→TXD

GND←→GND

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For more detail about the 7188EF-016 and FR_Net I/O modules, please refer to <u>ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/fr_net/7188ef/document/</u>

2.3 Search I/O modules:

DCON Utility is a program based on COM port interface, it can search DCON Protocol and Modbus RTU Protocol modules and support checksum disable and enable.

🖉 Select the COM Port and Baud Rate 🛛 🛛 🔀							
COM to search:Time Out Setting :							
COM1 💌	300 ms						
- Baud Rate to search:							
F 921600 F 460800	〒 230400 ▼ 115200						
▼ 57600 ▼ 38400	🔽 19200 🔽 9600						
▼ 4800 ▼ 2400	▼ 1200						
Select All	Clear						
- Select Protocol Uption	Modbus PTU						
	Modbus III O						
- Select Checksum Upti	on III Enable						
J• Disable	J* LE l'able						
	1						
Lancer							

2.3.1 Search functions:

The buttons below show the description about the search function.

🖉 DCON Utilit	y ¥er. 4.4.0								
File COM Port	<u>File C</u> OM Port <u>S</u> earch <u>R</u> un <u>T</u> erminal <u>H</u> elp								
Searching for	Searching for I-7000/8000 Modules								
Module	Address Baudrate Alarm Checksum Description								
	Exit Search Dialog Stop Searching Start Searching the Network								
Searching Status:									
COM Port: COM 1 Address: 00[dec] 0[hex] Baud Rate: 9600									

2.3.2 Search modules:

If it is the first time to search and to configure the new or unknown modules, there are rules which can help to search and configure the modules.

Step 1. Make sure the wirings are correctly connected.

Please refer to the previous sections.

Step 2. Search and configure the modules one by one.

If the modules are new or unknown, they may have the same communication settings, and if there are two modules with the same communication settings, it will get an unexpected search result. So they must be searched and be configured one by one.

Step 3. Check the COM Port Setting.

Choose the COM port of Host PC that will connect to the module and select the searching parameters.

DCON Utility Yer. 4.4.0							
File	<u>C</u> OM Port	<u>S</u> earch <u>F</u>	<u>{un T</u> erminal	<u>H</u> elp			
Searching for I-7000/8000 Modules							
M	lodule	Address	Baudrate	Alarm	1		

If does not know the communication settings of modules, it can select multi-baud rate, protocol or checksum conditions, but it will spend more time to scan the network.

Select the COM Port and Baud Rate								
COM to search: Time Out Setting :								
	300 ms							
Baud Rate to search:								
921600 🥅 460800	🗖 230400 🔽 115200							
▼ 57600 ▼ 38400	▼ 19200 ▼ 9600 ▼ 1200							
Select All	Clear							
Select Protocol Option								
DCON	Modbus RTU							
-Select Checksum Optic	n –							
I✓ Disable	JY Enable							
Cancel								



Step 5. Click Searched ID to enter the configuration form.



Click ID to enter the configuration form

Configuration	Setting:	Channel Enable/Disable Setting:
Protocol:	DCON	CH:0 +000.005
Address[dec]: Baudrate :	1	I CH:1 +000.005 I CH:5 +000.005
Checksum :	Disable 🗾	IF CH:2 +000.005 IF CH:6 +000.005
Data format :	Engineering	☞ CH:3 +000.006
Input range :	+/·1V	
Filter Setting:	50Hz 💌	Sel All <u>C</u> ir All Exit
Mode:	Fast Mode 🗾	
	Setting	Modbus Response Delay Time Setting Delay Time 0 Construction Construc

The Configuration form of 7017R

2.3.3 Search the unknown modules:

Sometimes, user tries to find the I/O modules and failed to do it.

Step 1. Make sure the wiring is correct.

Step 2. Search and configure the modules one by one.

Step 3. Connect the INIT* to GND and Power on the module.

If the modules are powered on with the INIT* connected to GND, it can get the initial communication settings, the initial communication settings of 7000 series and 87K series are list in the table below.

	7000 series (i-7000 and M-7000)	87K series
Address 0		0
Baud rate	9600	115200
Checksum	Disabled	Disabled
Protocol	DCON Protocol	DCON Protocol

Note 1: The default settings and initial settings are different.

Note 2: If the module is a new one, it will have the default communication settings, the default communication settings of i-7K, M-7K and 87K series are list in the table below.

	i-7000	M-7000	87K series
Address	1	1	1
Baud rate	9600	9600	115200
Checksum	Disabled	Not defined	Disabled
Protocol	DCON Protocol	Modbus Protocol	DCON Protocol

Note 3: i-8000 system can not power on with INIT* connect to INIT*COM to get the default communication setting, because when INIT* connect to INIT*COM, the firmware can not be auto executed by the MiniOS7.

Step 4. Check the COM Port Setting.

Select the	COM Port an	d Baud Rate - Time Out Setting :
СОМ1	•	300 ms
Baud Rate	to search:	
1 921600 1 57600 1 4800	460800 38400 2400	☐ 230400 ₹ 115200 ☐ 19200 ₹ 9600 ☐ 1200
[<u>S</u> elect All	Cl <u>e</u> ar
Select Pro	tocol Option	
	DCON	📕 Modbus RTU
Select Che	ecksum Optio	n
	🔽 Disable	🔲 Enable
	S Cancel	<u>OK</u>

Note: When module is powered on with INIT* connects to GND, it can just choose baud rate 115200, and 9600 as searching condition.

Step 5. Clicks

to start searching.



Step 6. Click Module ID to Enter the Configuration form.

DCON Util File COM Port	lity¥er.4.4 t <u>S</u> earch <u>R</u> u	1.0 un <u>T</u> erminal <u>H</u> elp			
The Found C)ut I/O modu	ile			
Module 7017R	Address 0[0]	Baudrate Alarm 9600	Checksum Disable	Description 1*AI (mA,mV,V)(DCON)	
	IINIT* st	ate of 7000 serie	es	••••••••••••••••••••••••••••••••••••••	
	vlodule i	D to Enter the	Configura	ation Form	

🖉 Configuratio	on for 7017R Modul	e Version: B201		
- Configuration	Setting:		- Channel Enable/Disa	ble Setting:
Protocol:	DCON	_	CH:0 +000.005	CH:4 +000.006
Address[dec]	0	÷	CH:1 +000.006	CH:5 4000 005
Baudrate	9600			
Checksum :	Disable	J	F CH.2 1000.000	V CH.6 +000.006
Data format : Input range			IV CH:3 +000.005	IV LH:7 +000.006
Filter Setting:	60Hz		Col All	Ch All Evit
Mode:	East Mode			
	J. converse		Modbus Response De	lay Time Setting
	Setting		Delay Time 0	🕂 (0~30 ms) Setting

INIT* State

Step 7. Change and Save the Communication Settings to EEPROM.

When module is powered on with INIT* connected to GND, the module will use initial settings as its communication parameters, but the real communication settings which save on EEPREOM are not changed. The better way is to connect the INIT* to GND and click "Setting" to save the initial settings to EEPROM.

Configuration	Settina:		-Channel Enable/Disa	ble Setting: -	Running!
Protocol:	DCON	<u> </u>	✓ CH:0 +000.005	🔽 CH:4	+000.005
Address[dec	3	-			
Baudrate	9600	-	1• 000.005	J♥ CH:5	+000.005
Checksum :	Disable	-	CH:2 +000.005	V CH:6	+000.005
Data format :	Engineering	7017R ->	Setting Address OK:		<mark>.005</mark>
Input range	+/-1V	The INI	* may connect to GND!! Pleas	e do following st	eps
Filter Setting:	50Hz	Step1.I o	Disconnect INIT* pin from GN r adjust the dipswitch to Norma	D ping. 11 side.	Exit
Mode:	Fast Mode	Step2. H Step3. S	ower off then Power on the ma Search the module again.	odule.	
	Setting		[確定]		Setting

Change the communication settings and Click "Setting" to bring change into effect.

Step 8. Reset the Power and Release the INIT* to Normal state then Search again.

When successfully set the communication settings, it must release the INIT* to normal state and reset the power then search again, the module now use the new communication settings and the settings are the same as those which save at EEPROM.

Chapter3. Configure I/O modules

3.1 To Configure i-7K, M-7K and i-87K I/O modules:

There are DCON Protocol and Modbus Protocol I/O module, for most general settings, they need to choose the wanted property and click setting to make it effect.

3.1.1 Change Baud rate, Checksum and Protocol:

If attempted to change the Baud Rate, Checksum and Protocol, the INIT* pin needs to connect to GND. After successfully configuring these properties, the I/O modules must be reset the Power to bring the settings into effect.

There are some different styles of INIT* pin, and they are at different position.



> Old style INIT* pin of 7000 series:

The old style of INIT* needs to use a wire to connect to the GND

➢ New style INIT* pin of 7000 series:



> i-87K1, i-87K4, i-87K8 I/O Expansion:



The INIT* pins of Slot0 to Slot7 are located at the right edge of i-87K I/O Expansion.

Note 1: When power on i-87K I/O Expansion, only one INIT*-Switch can be set to ON (INIT* pin connects to GND) at the same time.

2 3 5 7 4 6 8 1 Slot-0=INIT* ON Off Off Off Off Off Off Off Slot-1=INIT* Off ON Off Off Off Off Off Off Slot-2=INIT* Off Off ON Off Off Off Off Off Slot-3=INIT* Off Off Off ON Off Off Off Off Slot-4=INIT* Off Off Off Off ON Off Off Off MIT* Slot-5=INIT* Off Off Off Off Off ON Off Off Slot-6=INIT* Off Off Off Off Off Off ON Off Slot-7=INIT* Off Off Off Off Off Off Off ON

The table below shows how to map the INIT* pins to the slot I/O on i-87K I/O Expansion.

Note 2: The INIT* pin of i-87K5 is located at Slot4, and i-87K9 is at Slot8. The diagram below shows the INIT* pin location and how to use the jumper to short the INIT* to GND. If the module at this slot needs to connect the INIT* to GND, it will be better to do this job at another Slot



The location of INIT* pins are located at slot4 of i-87K5 and slot8 of i-87K9

Note 3: The Slot location (index of Slot) is not related to the Net Address of I/O modules, it only indicates the relative position of module on i-87K I/O Expansion.

3.1.2 Modbus Response Delay Time:

Sometimes the Modbus modules need to set the Modbus Response Delay time, For Modbus RTU mode, messages start with a silent interval of at least 3.5 character times, some PLC or SCADA software can not totally receive the response data from the Modbus modules for the quick response time.

🖉 Configuratio	n for 7017R Module Version: B201	
-Configuration	Setting:	- Channel Enable/Disable Setting:
Protocol:	Modbus 🗨	CH:0 0018 CH:4 0014
Address[dec]:	1	CH:1 0017
Baudrate :	9600 🔽	
Checksum :	Disable	CH:2 0016
Data format :	2's Complement 📃	CH:3 0015 CH:7 0011
Input range :	+/·5V	
Filter Setting:	60Hz	<u>Sel All</u> <u>Cir All</u> Exit
Mode:	Fast Mode 📃	Nadhua Raapapaa Dalay Tina Satting
	Setting	Delay Time 18 (0~30 ms) Setting

The Response Delay Time settings of Modbus Protocol I/O modules

3.1.3 To Configure Digital I/O modules:

The Modbus DO modules don't support safe value function, but the DCON modules do.

🦉 Configura	tion for 7060	Module Ve	rsion: 013	91	
		706	50		
Digital (LSB (CH:0)	Dutput -	15		0xF	MSB (CH:3)
Power C)n Value o Read Value Write Value	f DO —	S	afe Val Reac Write	ue of DO IValue Value
Digital I LSB (CH:0)	nput –	15		0xF	MSB (CH:3)
Configuratio	DCON		<u>S</u>	etting	Latch / Counter

7060 is set to DCON Protocol



3.1.4 To Configure Analog Input modules:

The DCON modules support Engineering, Percent, Hex, Ohm data formats; the Modbus modules support only Hex data format.

🖉 Configuratio	n for 7017R Module Version: B201	
-Configuration	Setting:	- Channel Enable/Disable Setting:
Protocol:	DCON	CH:0 +000.004 CH:4 +000.003
Address[dec]:	1	
Baudrate :	9600 💌	
Checksum .	Disable	V CH:2 +000.004 V CH:6 +000.003
Data format :	Engineering	I CH:3 +000.004 I CH:7 +000.003
Input range	7.5V ▼	·
Filter Setting:	60Hz 💌	Sel All CIr All Exit
Mode:	Fast Mode 📃	
		Modbus Response Delay Time Setting
	Setting	Delay Time 0 (0~30 ms) Setting

7017R is set to DCON Protocol

🖉 Configuratio	n for 7017R Module Version: B201	
- Configuration	Setting:	- Channel Enable/Disable Setting:
Protocol:	Modbus	CH:0 0018 CH:4 0014
Address[dec]:	1 🗧	CH:1 0017
Baudrate :	9600	
Checksum .	Disable	IV CH.2 0016 IV CH:6 0016
Data format :	2's Complement 📃	CH:3 0015 CH:7 0011
Input range :	▼ V++	
Filter Setting:	60Hz 💌	<u>S</u> el All <u>C</u> ir All Exit
Mode:	Fast Mode 📃 💌	Madhus Response Dalay Time Catting
	Setting	Delay Time 18 (0~30 ms) Setting

7017R is set to Modbus Protocol

3.1.5 To Configure Analog Output modules:

The DCON AO modules support Engineering, Percent, Hex data formats; the Modbus modules support only Hex data format.

Configuration for 7022 Module Version	: B101	X
Configuration Setting:	Channel Output	Output value: Read back :
Address: 1	+02.100	¥ <u>+02.100</u> <u>+00.000</u>
Data format : Engineering Unit	0 5 1	0 Set Power On Value
Bautate: 9600	Outer hange: 0-10 V	ting Bead Safe Value
	- Channel Output	
Setting	Channel: 1 +06.000	Output value: Read back : mA +06.000 +04.000
Modbus Response Delay Time Setting	4 12	20 Set Power On Value
	Output Range: 4-20 mA	etting Set Safe Value
E <u>x</u> it	Slew Rate: immediate change 👤 💻	Read Safe Value

7022 is set to DCON Protocol

The modbus AO modules do not support the safe value function also.

Configurat	ion for 7022 Modu	le Version: 1	B101			X
- Configuration Protocol:	on Setting:	-	Channel Outp Channel: 0	ut:	mA	Output value: Read back : +04.200 +00.000
Address: Data format	1 Engineering Unit		0	10	20	Set Power On Value
Baudrete: Checksum:	9600 Disable	•	Outers Range: Slew Rate:	0-20 mA immediate change	▼ ▼	Set Safe Value Read Safe Value
	Setting		Channel Outp	ut:	mA	Output value: Read back : +02.501 +00.000
– Modbus Re Delay Time	sponse Delay Time	Setting	0	10	20	Set Power On Value
	E <u>x</u> it		Output Range: Slew Rate:	0-20 mA immediate change	▼ ▼	Set Safe Value Read Safe Value

7022 is set to Modbus Protocol

	The differences	between	DCON	modules	and	Modbus	modules.
--	-----------------	---------	------	---------	-----	--------	----------

	DCON Protocol	Modbus
Checksum setting	Yes	No
Modbus response delay time	No	Yes
DO safe value	Yes	No
AO safe value	Yes	No
Data format(Engineering)	Yes (AI, AO)	No
Data format(Hex)	Yes (AI, AO)	Yes
Data format(Percent)	Yes (AI, AO)	No
Data format(Ohm)	Yes (RTD, Thermistor)	No

3.2 To Configure i-8410, i-8810, i-8411, i-8811, i-8430, i-8830, i-8431, i-8831, i-8KE4 and i-8KE8 I/O Units:

i-8000 system includes CPU module and the I/O modules on its slots.

3.2.1 Configure the CPU module:

- 1. The CPU module is the communication and control center of i-8000 system.
- 2. DCON Utility communicates with this CPU module.
- 3. CPU module can get data from I/O modules.
- 4. CPU module can save the configuration settings of I/O modules.
- 5. CPU module can control the LED Display and Push Button function.



Access and Control the I/O module Digi

Digital and Analog Measurement

For CPU module, the most important is to configure the communication Settings and DI Active State Reverse function.



> The Net Address of i-8000 system:

The Net address of i-8410, i-8810, i-8411, i-8811, i-8430, i-8830, i-8431, i-8831 are determined by the dip switch at the right edge of plastic housing.



For Serial Interface, the communication settings will show on the 5-digital LED menu.



Baudrate Table:

0x3	0x4	0x5	0x6	0x7	0x8	0x9	0xA
1200	2400	4800	9600	19200	38400	57600	115200

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i-8KE4, i-8KE8 Ethernet I/O units do not have Net ID dip switch at the right edge of plastic housing, the **Net Address is fixed to 1**.



For Ethernet version, the LED menu is controlled by XServer that constantly shows IP address, Baud Rate, Data Bit Format ...etc as following sequences.



3.2.2 Change Baud rate and Checksum:

If attempted to change the Baud Rate, Checksum; **the INIT* pin needs to connect to INIT*COM**.



Note: There is no need to configure the Baud rate and checksum for I/O modules on slots, for all the I/O modules are at INIT states and controlled by the CPU of MCU.

3.2.3 Change the DI Logical Value:

There are two applications about the DI signal.

Default is "DI: Normal 0; Active 1". When DI modules detect the input signal, the LED will be turned on (Green color) and will get logical value 1, otherwise the LED will be turned off (become Dark) and get logical value 0.





Choose "DI: Normal 1; Active 0" will reverse the Logical input value of DI modules.

🖉 8000 setting			
	1888	ful processing e Networking Op Web en:	ngine otions abled
MODE	8830 -> Settin Set Module DI	Reverse Flag OK!	nments
- Configuration Address:	n Setting	Firmware A3)7
Baudrate: Checksum:	115200 ▼ Disable ▼ <u>S</u> etti	• DI:Normal 1; Activ	e 0 He

In this case, when there is no DI input signal detected, the LED is off, but the logical value is 1; otherwise, the LED will be on and the logical value is 0.





3.2.4 The differences between i-8K and i-87K I/O modules:

The DCON firmware (DCON_nnn.exe,E10M_nnn.exe) supports both 8K and 87K series I/O modules. The two series I/O modules can be plug in same I-8000 MCU. The modules for DI, DO, DIO, AI, AO and Counter/Frequency are supported. Other modules such as multi-serial port (8112, 8144, 8142, 8144), MMC(8073), motion (8090, 8091) are not supported. The file in the shipped CD lists details.

CD:\Napdos\Driver\DCON_Utility\DCON_Utility_Module_List.htm

The DCON firmware only accepts 4 digits numbers. Thus both 8K and 87K series are recognized as 4 digits numbers. When using the DCON Utility to search I/O modules, the screen shown as following:

The I/O Modules Found								
		WIN						
Module 8810 8063(87K) 8063 8013(87K) 8017H 8022(87K) 8018(87K) 8080 8019(87K)	Address 3[3] 50 51 52 53 54 55 56 57	Baudrate 115200 115200 115200 115200 115200 115200 115200 115200 115200	Alarm Cher Disa Disa Disa Disa Disa Disa Disa	cksum ble ble ble ble ble ble ble ble	Description 8*Slot Serial I/O Unit(DCON) 4*DI + 4*DO 4*AI (RTD) 8*AI High Speed Differential Anolog Input(mA,mV,V) 2*AO (mA,V) 8*AI (mA,mV,V,Thermocouple) 8*Counter/Frequency 8*AI (Universal mA,mV,V,Thermocouple)			
<								
Searching Status: COM Port: COM 1 Address: 06[dec] 6[hex] Baud Rate: 9600								

3.2.5 To Configure Digital I/O modules on i-8000 system:

Both i-8K DO modules and i-87K DO modules have DO Power On value and Safe value and they are all controlled by the CPU module of i-8000 system.

	🖉 Configuration for 8063 Module Version: A101 🛛 🛛 🔀
Configuration for 8063	8063
8063	Digital Output 3 0x03 LSB (CH:0) MSB (CH:3)
Digital Output 2 0x02 LSB (CH:0) MSB (CH:3)	
	Power On Value of DO Safe Value of DO
Power On Value of DO Safe Value of DO	Read Value Read Value Write Value Disable
Write Value Disable	Digital Input 0 0x00 MSB (CH:3)
Digital Input 0 0x00	
LSB (CH:0) MSB (CH:3)	
Exit a	Exit Latch / Counter
i-8063 on i-8000 system	i-87063 on i-8000 system

But DI module of i-87K have DI counter and DI latch functions and i-8K DI modules do not.



The Di counter and laten functions of 1-87063 on 1-8000 system.

Note 1: There is a DI Counter value ($0 \sim 65535$) for each channel of 87K DI modules.

Note 2: When the Clear Latch function is applied, the Latch Low and Latch High values are reset to 0.

3.2.6 To Configure Analog Input modules on i-8000 system:

The analog input modules on i-8000 system have advantages on DO Alarm mapping, they can have their alarm output map to any slot of DO module (must less then or equal to16 bits DO) for each channel of Analog input, the firmware will auto scan the Analog input modules and auto trigger the DO alarm output.

The data format of the Analog input modules on i-8000 system only support engineering format, i-8000 system does not support hex format and percent format.

Configuration for 8013 Module Version: A101	X
Channel Enable/Disable Setting:	Channel 0: Channel 1: Channel 2: Channel 3:
I CH:0 -9999.900 I CH:2 -9999.900	CH:2 High Alarm Setting:
I▼ CH:1 -9999.900 I▼ CH:3 -9999.900	DO Map: High Alarm Connection
	○ Disable D0 Slot : □ ▼ ● Enable D0 Channet: □ ▼
	Alarm Type: Alarm Value: Momentary - 0
Configuration Setting:	Reading Value: Alarm: Off Setting
Data format : Engineering	-9999.900 Clear Latch
Input range : 0 ~ +100 ,PT 100 α=0.00385 💌	Low Alarm Setting:
Filter Setting: 60Hz	DO Map: Low Alarm Connection
	C Disable DO Slot 1 💌
Ø	Enable D0 Channel:
<u>Setting</u>	Alarm Type: Alarm Value:
Exit	Reading Value: Alarm: Off Setting -9999.900 Image: Clear Latch

i-87013 RTD input on i-8000 system

3.2.7 To Configure Analog Output modules on i-8000 system:

The analog output modules on i-8000 system can change their type codes and setup their Power On value, but do not have Safe value.

The data format of analog output modules on i-8000 system only support engineer format. The slew rate function also be disabled,

Configuration for 8022 Module Versio	n: A103
Channel 0 Channel 1	Channel 2 Channel3
Output Range:	
Data Format: Engineering Unit Slew Rate: immediate change	0 5 10
8	۲
Setting	Output value: Read back : Setting as +00.000 +00.000 Start-Up
E	<u>x</u> it

i-87022 on i-8000 system

3.3 Configure i-7188EF-016:

i-7188EF-016 is an Ethernet I/O units running DCON Firmware **EF016nnn.exe**, it can support maximum 128 bits DI and 128 bits DO, the **Net Address is fixed to 1** and there is no need to configure the i-7188EF-016 Ethernet I/O unit.





3.4 Configure i-87K I/O modules on WinCon:

When i-87K I/O modules applied to the WinCon system, DCON Utility can also help user to configure the I/O especially for AI, AO and Counter/Frequency modules.



Note : The wire connection between WinCon's COM2 and PC's COM port is the most asked question when using DCON Utility to configure i-87K I/O modules which are inserted into the WinCon.



pin2 and pin3 of the COM port connecter

DCON Utility can not search WinCon directly, it needs some steps to achieve the mission.

Step 1: Check Compact Flash Card of the WinCon Controller and make sure the DCON CE V200.exe is located at the path CompactFlash\ICPDAS\Tools\ or Compact Flash\ICPDAS\Tools\.

Note: If there is no such a file at the Flash Card, it can download from the web site below. http://www.icpdas.com/products/PAC/wincon-8000/Download/download Compact%20Flas h.htm

Step 2: Click

button and input the IP address of the WinCon.

It needs to use telnet protocol to execute the **DCON CE V200.exe** and to configure i-87K I/O module.

File COM Port Search Run Terminal Help Searching for I-7000/8000 Modules Module Address Deudere Alarm Checksum Description Embedded CE IP Address	DCON Utility Ver. 4.4.0	
Searching for 1-7000/8000 Modules	<u>File C</u> OM Port <u>S</u> earch <u>R</u> un <u>T</u> erminal <u>H</u> el	þ
Press wince then input the IP address of WinCon than DCON Utility will use telnet to execute the DCON_CE_V200.exe Please input the WinCon IP Address DK Image: Comparison of the term of the term of te	File COM Port Search Run Terminal Hel Searching for I-7000/8000 Modules Module Address Dendree Press WinCE then input the IP address of WinCon than DCON Utility will use telnet to execute the DCON_CE_V200.exe Searching Status: COM Port COM 1 Address: 000	Alarm Checksum Description Embedded CE IP Address Image: Concelence of the

Step 3: Click

button to Search the i-87K modules.

When DCON_CE_V200.exe has been executed, DCON Utility needs to use COM port cable to connect to the WinCon's COM2 (RS-232) in order to search and to configure i-87K I/O modules.

DCON Utility Ver. 4.4.0		
<u>File COM Port Search Run Terminal Help</u>		
The I/O Modules Found		
Module Address Baudrate Alarm WinCon8000 1[1] 115200 xxxxx S0 87018(87K) S1 115200 87057(87K) S2 115200 87082(87K) S3 115200 87082(87K) S3 115200 87082(87K) S3 115200 xxxxxx S4 xxxxxx S5 xxxxxx S6 xxxxxx S6 C7 C7 C7 C7	Checksum Disable Disable Disable Disable	Description WinCon8000 System(DCON) [Parallel bus module] or [None] 8*Al (mA,mV,V,Thermocouple) 16*D0 2*Counter/Frequency + 2*D0 [Parallel bus module] or [None] [Parallel bus module] or [None] [Parallel bus module] or [None] [Parallel bus module] or [None]
xxxxx 57 Searching Status: COM Port: COM 1 Address: 01[dec]	11[hex]	[Parallel bus module] or [None]
		P.M. 01:56

Note: DCON Utility only support i-87K I/O modules on WinCon, i-8K modules will not be shown by DCON_CE_V200.exe and DCON Utility.

For using DCON_CE_V200.exe and wire connection of WinCon's COM2 with PC, please refer to

<u>ftp://ftp.icpdas.com/pub/cd/winconcd/napdos/WinCE/User%20Manual/</u> or WinCon CD:\Napdos\WinCE\User Manual\WinCON Getting Started 1.4.pdf (2.3 I-87K Module Settings)

Chapter4. Tools of DCON Utility

4.1 Terminal Single Line function:



This is a basic tool for user to test and debug the command.

It supports both DCON Protocol and Modbus RTU Protocol.

🖉 Single Line Terminal 🛛 🛛 🔀
Module Config: Protocol 3600 ▼ Disable Enable 200 ÷
\$0352M
Command: Response:
<u>م</u>
<u>s</u>
Clear List
Modbus RTU Function Description
FC1 Read multiple coils status (0xxxx) for D0
[Request]

The first step user must know the communication settings of target module.

The second step is to look for the commands on user manual.

For I-8000 series modules the files are located at:

CD:\Napdos\DCON\IO_Module\hw_dcon_on_8KUnit\8k_modules.htm ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/dcon/io_module/8k_modules.htm

For I-87K series modules the files are located at:

CD:\Napdos\DCON\IO_Module\87k_modules.htm ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/dcon/io_module/87k_modules.htm

For i-7K and M-7K series modules, please refer to

CD:\Napdos\7000\Manual\ ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/7000/manual/

Example 1:

If there is a 7017R with the net address 01, baud rate 9600, checksum disable and DCON protocol.

Ø 1	DCON Utili	ty Ver. 4.	4.0					X
<u>F</u> ile	<u>C</u> OM Port	<u>S</u> earch <u>R</u>	un <u>T</u> erminal	<u>H</u> elp				
The	e Found Ou	t I/O mod	ale					
Þ								
	1odule -	Address	Baudrate	Alarm	Checksum	Description		
7	017R	1[1]	9600		Disable	1*AI (mA,mV,V)(DCON)		

It can use #010 to read the AI values of channel 0.

The response of i-7017R is ">+0.0065"

🦸 Single Line Terminal	
Module Config: Baud Rate: 9600 Timeout: 100 100 100 100 100 100 100 10	© Go Exit
#010	<u>•</u>
Command: #010 Response: >+0.0065	
-> #010 >+0.0065 31ms	
<	>
Clear List	

Example 2:

If there is a 7017R with the net address 01, baud rate 9600 and Modbus protocol.

🖉 DCON Utility Ver. 4.4.0				X
<u>F</u> ile <u>C</u> OM Port <u>S</u> earch <u>R</u> un <u>T</u> erminal	<u>H</u> elp			
The I/O Modules Found				
Module Address Baudrate	Alarm	Checksum	Description	
7017R 1[1] 9600		Disable	1*AI (mA,mV,V)(Modbus RTU)	

If wants to read AI value of channel 0, then it can look up to the description of Modbus command.

Then it can use 1 4 0 0 0 1 to read the AI value of channel 0 and get the value 01 04 02 00 30 B9 24

Single Line Terminal		
Module Config: Baud Rate: 9600 CheckSum Disable Enable 100 CheckSum	Protocol DCON MRTU	Go <u>Go</u> E <u>x</u> it
01 04 00 00 00 01		•
Command: 1 4 0 0 0 1 Response: 01 04 02 00 30 B9 24 >> 01 04 00 00 00 01 [31 CA] 01 04 02 00 30 B9 24 >> 01 04 02 00 30 B9 24 62ms		
<		2
Cle	ar List	
Modbus RTU Function Description FC4 Read multiple input registers (3xxxx) for Al [Request] Byte 0: Net ID (Station number) Byte 1: FC=04 Byte 2-3: Reference number Byte 4-5: Word count	n	

4.2 Data Log function:

This function is a simple tool to have data log report.

Logf	Report:		CON_Utility	Log_Report to		Brower	Edit
otia I/i	, D commands	.7					1
<u>сом</u> I I	Baudrate 9600 9600	Checksum 0 0	Command \$04506 #0457C0	Response	Trimed response	Compare Rel. 0 +5.48	Interval (m 5000 1000

4.2.1 Edit the Log_Config.txt

/*						
The documet is a	configure file to let the Utility send specific					
command string to	o the moudles and log the communication packages					
to the report fil	Le.					
The parameters a	re :					
[COM],[Baudrate]	,[Checksum],[Command],[Left trim],[Right trim],[Compare Ref.],[Time interval]					
[COM]:	1 ~ 255					
[Baudrate]:	1200,2400,4800,9600,19200,38400,57600,115200					
[Checksum]:	0 ==> disable					
	1 ==> enable					
[Command]:	command string that will be sent to the I/O modules.					
[Left trim]:	trims how many bytes of the left of the received string.					
[Right trim]:	trims how many bytes of the right of the received string.					
[Compare Ref.]:	referance string used to compare the trimmed response string.					
[Time interval]:	time interval to run the command.					
	unit: ms					
Please change it	to suit your hardware configuration.					
[Oct,9,2003] by I	[Oct,9,2003] by Kevin					
Note 1: The confi	iq file is used from DCON Utility 4.2.7.					
Note 2: The docu	ment is termniated by one '*' and one '/'.					
*/	-					
1,9600,0, "\$011	1",0,0,"!017018",100					

It needs to put right parameters to get right response records from modules,





Example 1.

If we have an i-8810 MCU at Address 08 and an i-8041 DI module at Slot 05 on MCU

We use \$08S56 to read I/O Status and get response !0800000000

All we want from the response is the I / O Status 00000000

so we have to trim left 3(!08) from !080000000 to get 00000000

Example 2.

If I/O status has been changed we can use Compared Ref. 00000000

If I/O status has been changed to 000000F0 then Compared result is -1

If no change then Compared result is 0

Example 3.

If we have an i-8810 MCU at Address 08 and an i-8017H AI module at Slot 04 on MCU

We use #08S4C0 to read Analog input at channel 0 and the response format is >+05.048

if we want to trim off the ">" character

then we set Left trim 1 and Right trim 0 to get +5.048 format

4.2.2 Use EXCEL to Import the data of Log_Report.txt

In some situation user would want to transfer Log_Report to excel file

The procedure below will show how to do it

- Step 1. Execute Excel.exe
- Step 2. Data ->Import External Data ->Import Data



Step 3. Select "Delimit"

	cj choose 146	xt, or choose the	data type that t	est des	ribes your dat	a.	
iginal data l booce the fi	type le tune that l	hart decreber you	r data:				
Delimite	d) - Ch	aracters such as c	n uaca. ommas or tabs s	eparate	each field.		
C Fixed w	idth - Fie	lds are aligned in c	olumns with spa	ces bet	veen each field	J.	
			-	lun ti			-
Start im	port at row:	1 3	File origin:	Windo	ws (ANSI)		24
Start in	nport at row:	1 🕀	File <u>o</u> rigin:	Jwindo	ws (AN5I)		
Start in eview of file	nport at row: • C:\DAQPro	1 🛨 (DCON_Utility/Log.	File origin: _Report.txt.	Twindo	ws (ANSI)		
Start in eview of file	<pre>port at row: c:\DAQProl (Line),</pre>	1 🛃	File origin: _Report.txt. 	[Windo	(Connand)	(Respons	
Start in eview of file (No.) , 000001 ,	nport at row: c:\DAQPro (Line), 001,	1 🛨 DCON_Utility Log, (Date), 11/7/2003,	File origin: Report.txt. [Time], 17:31:38,	[Hs], 000,	(Connand), #0854C0,	(Respons	
Start in eview of file (No.) , 000001 , 000002 ,	port at row: c:\DAQPro (Line), 001, 002,	1 1 (DCON_Utility(Log. (Date), 11/7/2003, 11/7/2003,	File origin: Report.txt. [Time], 17:31:38, 17:31:38,	(Hs), 000, 000,	(Command), #0854C0, \$08556,	(Respons >+05.04 !080000	
Start in eview of file (No.) , 000001, 000002, 000003,	nport at row: c:\DAQPro (Line), 001, 002, 001,	1 1 (DCON_Utility/Log (Date), 11/7/2003, 11/7/2003, 11/7/2003,	File origin: [Report.txt. [Time], 17:31:38, 17:31:38, 17:31:39,	(Hs), 000, 000,	(Command), #0834C0, \$08356, #0834C0,	(Respons >+05.04 !080000 >+05.04	
Start in eview of file (No.) , 000001 , 000002 , 000003 , 000004 ,	<pre>nport at row: c:\DAQProl (Line), 001, 002, 001, 002,</pre>	1	File origin: [Report.txt. [Time], 17:31:38, 17:31:39, 17:31:39,	(Hs), 000, 000, 000,	<pre>/// (Command) // #0854C0 // #08556 // #008556 // #008556 // #00000 #0000 #0000 #0000 #00000 #0000 #00000 #000000</pre>	<pre>[Respons >+05.04 !080000 >+05.04 !080000</pre>	

Step 4. Select "Comma" as delimit

now your	text is affect	ted in the preview i	below.	, 100.00	an 966		
Delimiter:	5			Treat u	Insecutive delr	niters as one	
∏ <u>I</u> ab	I∏ Se	micolon (🗹 🤅	Comma)		$\langle -$		<
E Spa	ce F Q	ther: 🔲 ∽		Text g	Jalifiers [<u> </u>)
					1		1
					-		
ata previ	ew						
ata grevi	ew						
ata previ	ew [Line]	[Date]	(Time)	(Ms)	[Command]	[Response]	
ata previ (No.))00001	ew [Line] 001	(Date) 11/7/2003	[Time] 17:31:36	(Ms) 000	[Command] #0854C0	(Response) >+05.044	
ata previ (No.))00001)00002	ew [Line] 001 002	(Date) 11/7/2003 11/7/2003	[Time] 17:31:36 17:31:38	(Ns) 000 000	[Command] #0854C0 #08556	[Response] >+05.044 !080000	
ata previ (No.) 000001 000002 000003	(Line) 001 002 001	(Date) 11/7/2003 11/7/2003 11/7/2003	[Time] 17:31:36 17:31:38 17:31:38 17:31:35	(Ms) 000 000 000	[Command] #0854C0 #08556 #0854C0	[Response] >+05.044 !080000 >+05.045	
(No.) (No.))00001)00002)00003)00004	ew [Line] 001 002 001 002	(Date) 11/7/2003 11/7/2003 11/7/2003 11/7/2003	[Time] 17:31:36 17:31:38 17:31:38 17:31:35 17:31:39	(Ms) 000 000 000 000	[Command] #0854C0 \$08556 #0854C0 \$08556	[Response] >+05.044 !080000 >+05.045 :080000	

Step 5. Click "Finish" and get the result

	licroso	ft Exce	l - Book1								×
8	Ele	Edit	View Inser	t Format	Io	ols <u>D</u> ata	Window Hel	p. Typ	pe a question for	help 👻 🗕 🗗	×
0	00° 6	1 6	10-4	. Σ .	14	11 2	P Arial	- 8	- B /	U # # #	*
	A7		- 1	\$ 6	Shiriday	and the set of the	0990.0			college and the second s	0000
170	A	В	С	D	E	F	G	н	1	J	
1	[No.]	[Line]	[Date]	[Tine]	(Ms)	[Command]	[Response]	[Trined response]	[Compare Ref.]	[Compare result]	2
2	1	1	11/7/2003	17:31:38	0	#08S4C0	>+05.044	5.044	5.04	-1	1
3	2	2	11/7/2003	17:31:38	0	\$08556	10600000000	0	0	0	10
.4	3	1	11/7/2003	17:31:39	0	#08S4C0	>+05.045	5.045	5.04	-1	1
5	4	2	11/7/2003	17:31:39	0	\$08555	10800000000	0	0	0	21
6	5	1	11/7/2003	17:31:40	0	#08S4C0	>+05.044	5.044	5.04	-1	
7 H 4	6 1 N	2 Shee	11/7/2003 t1 / Sheet2	17:31:40 / Sheet3	/ 0	\$08556	10800000000	0	0	l	ř
Read	ły						16 11	Wish:	NUR	4	1

4.3 Monitoring function:

When finish searching and configuring the module, the monitor function can pooling every module one by one and show the results.

Form3						X
Module	Address	Baud				
Type:	Dec [Hex	Rate		Data	Remark	
7018	A:Ux1	9600	101	±0022 700	8*AI (mA,mV,V,Thermocouple) Analog Input Value	
7017R	À ∶0x2	9600	[0] [1] [3] [4] [6] [7] [1] [2] [4] [5] [5] [7]	$\begin{array}{c} +0022, 700 \\ +0022, 700 \\ +0023, 000 \\ +0022, 200 \\ +0022, 600 \\ +0022, 500 \\ +0022, 500 \\ +0022, 700 \\ +0022, 600 \\ 0025 \\ 0025 \\ 0025 \\ 0027 \\ 0025 \\ 0026 \\ \end{array}$	Analog Input Value Analog Input Value	
Running Cycles:	ومومومو	45			Stop Continue	Reset

4.4 Save Map, Open Map and Print Map function:



When the network contents many modules and need long time to search, it can save the search result into a map file, it will be very convenient to open map directly to load the previous result to searched form without searching time.



Open Map the Load the previous searched result directly.

OM Por	t Search E	m Ierminel	Help						
arching fo	r 1-7000/900	10 Modules	in.						
		22							
Module	Address	Baudrate	Alam	Checksum	Description				Γ
c								>	L
Searching	Status:						_		1
COM Port	COM 1	Address:	0[dec]	Ofhex		Baud Rate:	9600		

8

It also can print the searched result by using Print Map function.

Chapter5. DCON Protocol and Software Development ToolKit (free)

• Demo 31: Enable/Disable Alam Counter 0: Please Open Firstly Counter 0: Addressidec1: 1 Baud Rate: 500 V Mode Select: Counter 0: Open Firstly Counter Setting: Open Firstly Counter Setting: Adam Status: Signal Mode: OH Alam Title OH Counter Cate Mode: Counter Gate Mode: Alam Mode: Counter Gate Mode: Counter Cate Mode: Counter Gate Mode: Counter Cate Mode: Counter Gate Mode: Alam Value: Tooo Final	DCON DLL DLL library Supported modules: i-7000/8000/87K series (with DCON protocol) Supported demos: VB/VC/BCB/Delphi Supported OS: Windows 98/NT/2K/XP
	File location: CD:\Napdos\Driver\DCON_DLL
Protecti Merenel Visual Encode (deland) Protecti Merenel	DCON ActiveX ActiveX (ocx) component Supported modules: i-7000/8000/87K series (with DCON protocol) Supported demos: VB/VC/BCB/Delphi Supported OS: Windows 98/NT/2K/XP File location: CD:\Napdos\Driver\DCON_ActiveX
Demondance Demondanc	DCON LabVIEW Bundled driver for LabVIEW Supported modules: i-7000/8000/87K series (with DCON protocol) Supported OS: Windows 98/NT/2K/XP File location: CD:\Napdos\Driver\DCON_Labview

	DCON Indusoft Supported Module: i-7000/8000/87K series (with DCON protocol) Supported OS: Windows 98/NT/2K/XP/CE File location: CD:\Napdos\Driver\DCON_Indusoft
Image: Construction of the Construc	NAP OPC server Supported module: i-7000/8000/87K series (with DCON protocol) Modbus embedded controller ISaGRAF embedded controller Supported OS: Windows 98/NT/2K/XP/CE File location: CD:\Napdos\NapOPCSvr