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

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

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

Note: The communication parameters of the I-87 modules on the RU-87PN/USB-87PN/ET-87PN slot are automatically set by CPU module and cannot be

changed by software commands. For detailed operations of RU-87PN/USB-87PN/ET-87PN, please refer to the user manual.

RU-87PN user manual

<u>https://www.icpdas.com/web/product/download/io_and_unit/unit_dcon/ru-87pn/docume</u> nt/manual/ru-87pn_user%20manual_en.pdf

USB-87PN user manual

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

Windows USB Driver

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

Linux USB Driver

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

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ET-87PN user manual

<u>https://www.icpdas.com/web/product/download/io_and_unit/unit_dcon/et-87pn/docume</u> <u>nt/manual/et-87pn_user%20manual_en.pdf</u>

ET-87PN communication method

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

https://www.icpdas.com/en/product/guide+Software+Utility_Driver+VxComm__(Virtual __COM)#662

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

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

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



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Step 2: Use to the com	e DCON Utility Pro munication param V4.0.0.1 Searching COM3	to search leters an leters an line leters an line l	n for module d usage ite Checksum Format Disabled N,8,1	es, and ems pla FAQ Status Remote I/O about e=0 (NoError)	complete the anned by the Description [DCON]8*AO (V)	e setti: appli e instructions be ctive. js.	ngs according cation. Comments Supported X
Clea	Exit						

 太午 01·17 ··SET MODULE CONFIGE %00033E0400]· [103]· [3 mc]==>0k

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

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

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

Classification	DCON Utility Pro	FAQ				No.	DCON_002_006
Author	Martin	Version	1.0.0	Date	2020/12/24	Page	4/2
Step 3. Re	e-use DCON Utili by Pro PC V 4.0.0.1 Searchi	ty Pro to ng COM3	search an	d the r	results will	be as	follows
	01:A:0:N81:0 :02:A:0:N81:0 J:03:A:0:N81:0 04:A:0:N81:0	87018 87017Z 87028U 87054	1[01h] 2[02h] 3[03h] 4[04h]	115200 115200 115200 115200	Disabled Disabled Disabled Disabled	N,8,1 N,8,1 N,8,1 N,8,1	Remote I/O Remote I/O Remote I/O Remote I/O

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

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

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

DCON Utility Pro PC V 4.0.0.1 Searching COM3



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



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

RU-87P4Firmware[A401]					
PWR S.RDY Auto	o Configuration Erro	r Code References	About		
🧄 🤠 👝 🛛 Co	nfigued I/O Addr.[I	lex] Slot Confi	guration Status Set As Scanned	Write To 87PN	Scanned I/O
Address 87	7018 ~ 02	[01] M	odule scanned in Empty slot	Configure	87018
H 💭	7017Z ~ 93	[01] M	odule scanned in Empty slot	Configure	87017Z
87	7028U ~ 04	[01] M	odule scanned in Empty slot	Configure	87028U
L	7054 ~ 05	[01] M	odule scanned in Empty slot	Configure	87054
Auto Config N/A Checksum Baud Rate N/A N/A SW1 E	 87018 [Offline Con Configuration AI Protocol (INIT*) Address Baud Rate (INIT*) Parity (INIT*) Checksum (INIT*) Analog Format 60/50 Hz Type Code 	figuration] [00] +/- 15 mV [01] +/- 50 mV [02] +/- 100 mV [03] +/- 500 mV [04] +/- 1.0 V [05] +/- 2.5 V [06] +/- 2.0 mA [06] +/- 2.0 mA [06] T/C X-type [10] T/C T-type [11] T/C E-type [12] T/C R-type [13] T/C S-type [15] T/C N-type [15] T/C N-type [16] T/C C-type [05] +/- 2.5 V	mary About		×

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

PWR S.RDY	Auto Configuration Error Cod	e References About			
🖕 🖕 🔶 🔶	Configued I/O Addr.[Hex]	Slot Configuration Status	Set As Scanned	Write To 87PN	Scanned I/O
Address	87018 ~ 02	[00] OK		Configure	87018
H	87017Z v 03	[00] OK		Configure	87017Z
at B COM	87028U ~ 04	[00] OK		Configure	87028U
	87054 ~ 05	[00] OK		Configure	87054
N/A-					

Classification	DCON Utility Pro F	٩Q				No.	DCON_002_006
Author	Martin	Version	1.0.0	Date	2020/12/24	Page	7/2
Step 4: Cl I-87K modu has been s	ose the RU-87PN s les besides RU-8 set up and can co	setting so 7PN. "Sta mmunicat	creen, and itus" displ e.	search ays [00	again, and DOO], indica	you wi ting tl	ll find other hat the I-87K
		CMD				FAQ	
COM3:*	:01:A:0:N81:0		Address Baud		recksum Format	Status	opfic Eng
	18:02:A:0:N81:0	-87018	2[02h] 11520		sabled N,8,1	87PN S	lot 0
-870	28U:04:A:0:N81:0	-87017Z	3[03h] 11520	00 Di	isabled N,8,1	87PN S	lot 1
-870	04:05:A:0:N01:0	-87054	5[05h] 11520	00 Di	isabled N,8,1	87PN S	lot 3

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

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

	COM Port Search Options
	COM3 ~ Start 0 End 255
	Baud Rate Protocol Checksum Format
	☑ 115200 □ 57600 ☑ 38400 □ 19200
	☑ 9600 □ 4800 □ 2400 □ 1200
	Search RU-87PN Addr. Mode Timeout 300 ms
	Search And Get I/O Configurations
	Start Search Exit
	·
Clear	
4:2 Addross:0[00b]	Paul Pate 20400 N. 8.1 Checksum Disabled Modbus PTU
1.5 Address.0[0011]	Daud Rate. 30400 N, 0, 1 Checksum. Disabled Moubus RTO



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

Step 1: Download and install the USB Driver, the download path is as follows <u>https://www.icpdas.com/en/download/show.php?num=2974&mode1=USB-87P4-G</u> After installing the USB Driver, please make sure that the USB-87Pn (COMn) name can be seen in the device manager's port before it can be used.



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



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



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Author	Martin	Version	1.0.0	Date	2020/12/24	Page	11/2

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

DCON Utility Pro PC V 4.0.0.1							×
	8	смд	- 5	FAQ			
COM5:* USB-8772-01:6:0:N81:0 87018:02:6:0:N81: 87018:02:6:0:N81: 870172:03:6:0:N81: 870172:03:6:0:N81:	0 -8:	Address B-87P2 1[01h] 7018 2[02h] 7017Z 3[03h]	Baud Rate Checksum 9600 Disabled 9600 Disabled 9600 Disabled	Format Status N,8,1 Auto Config. Ena. N,8,1 87PN Slot 0 N,8,1 87PN Slot 1	Description (IDCON[2*Slot Auto Configuration USB Unit [DCON]3*A1 (mA,mV,V, Thermocouple) [DCON]10/20 *A1(mA,mV,V)Differental/Si	Comments Supported Supported Supported	
Clear							
COM-5 Addross-3[03b]	Baud Pate	0600 N.8.1	Chocksum:Disabl	led DCON			
CON.5 Address.5[0311]	Dadu Kale	N,0,1	CIECKSUIT.DISODI	ieu DCON			

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

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

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

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

	<u>i</u>	Configure Server				
Add Server(s) Remove Server Web Search Servers figuration (UDP) Exit	- Servers - ET-87PN:1-00 (10.0.8.222)	Port Configuration Server: ET-87PN:1-00 (10.0.8.222), Port I/O Port Mapping [PC] Port Setting (Device) Select COM UnMap IF Areassign COM2 IF Areassign COM2 IF Area baud CoM4 IF Brace baud CoM4 IF	X Por Por	nr Irt l/O Irrt I	• чишаг сом UnMap Опмар	Dauuraue N/A Dynamic
		OK Cancel				

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

VACOUNT OUNTY [V2.13.10	5, Oct.06, 2015]						
File Server Port Tools							
	Restart Driver		Configure Server				
P 9	Terminal				Port	Virtual COM	Baudrate
VxComi 🖪	Modbus RTU Master	B.222)	VxComm Utility: Restarting Driver	×	Pert I/O	COM10	N/A
Add Serve	Modbus TCP Master		STOP Restart the driver to use new configuration.		Port 1	COM11	Dynamic
	Driver Options						
	System Information		Status: Driver is running.				
Web		2	Pestat Driver				
Search Servers							
Configuration (UDP)							

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

Classification	DCON Utility Pro F	٩Q				No.	DCON_002_006				
Author	Martin	Version	1.0.0	Date	e 2020/12/24 P		13/2				
DCON Utility Pro PC	DCON Utility Pro PC V 4.0.0.1										
ET-87P8Firmwa	ID Art ET-87P8 1[ddress Baud Rate [01h] 115200	Checksum Format Disabled N,8,1	Status Auto Confi	Description g. Ena [DCON]8*Slot Aut	o Configuration	Comments a Etherne Supported X				
Auto Configuration Error Code References About Configued I/O Addr.[Hex] Slot Configuration Status Set As Scanned Write To 87PN Scanned I/O											
	5 6 7	87017Z ~ 87028U ~	[01] M	fodule scanne fodule scanne	l in Empty slot l in Empty slot	Configure Configure	87017Z 87028U				
		87054 V Empty V	15 [01] N 16 17	10dule scanne [00] O] [00] O]	t in Empty slot K K K	Configure Configure	Empty				
		Empty v C Empty v C	18 19	[00] OI	x [Configure	Empty Empty				
		Exit Save configurations Load Configurations Load configurations and write to 87PN									
Wait f											

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

ET-87P8Firmware[A302]					\times
Au	to Configuration Error	Code References About		\frown	2
	onfigued I/O Addr.[H	ex] Slot Configuration Status	Set As Scanned	Write To 87PN	Sonned I/O
	87018 ~ 02	[01] Module scanned in E	Empty slot	Configure	87018
4 5 6 7	87017Z v 03	[01] Module scanned in E	Empty slot	Configure	87017Z
8	87028U ~ 04	[01] Module scanned in E	Empty slot	Configure	\$7028U
	87054 05	[01] Module scanned in E	Empty slot	Configure	87054
	Et Configuration	guration]			×
	Et Protocol (INIT*)				
	Et Address	2 (02H)			
	Er Baud Rate (INIT*)	115200 ~			
	Parity (INIT*)	N,8,1 🗸			
	E) Checksum (INIT*)	Disabled ~			
	Analog Format	Engineering Forma V			
	Type Code	[05] +/- 2.5 V v			
IP: 010.000.008.222					
Mask: 255,255,000,000					
Gateway: 010 000 008 254		~			
Gateway. 010.000.008.234	-		Set	Module Configurations	
	ICP DAS Co.,	, Ltd. Technical docu	ment		

Classification	DCON Utility P	Pro FA	AQ				No.	DCON_002_006			
Author	Martin		Version	1.0.0	Date	2020/12/24	Page	14/2			
ET-87P8Firmware[A302]	Auto	o Configui	ration Error Code	References About				×			
0 1 2	3 INT. Cor	nfigued I/	/O Addr.[Hex]	Slot Configuration Statu	Set As So	write To 87PN	Scanned	I/O			
	87	7018 ~	, 02	[00] OK		Configure	87018				
4 5 6	7	7017Z ~	, 03	[00] OK		Configure	87017Z				
	87	7028U ~	, 04	[00] OK		Configure	87028U				
	SROY PWD	7054 ~	, 05	[00] OK		Configure	87054				
	Empty			[00] OK Configure			Empty				
	En	mpty ~	, 07	[00] OK		Configure	Empty				
	En	mpty ~	08	[00] OK		Configure	Empty				
	En	mpty ~	, 09	[00] OK		Configure	Empty				
		xit Sa	ave configurations	Load Configurations	Load config	gurations and write to 87P	N				
IP: 010.0	ID: D10.000.002.223 Slot 2 OK										
Mask: 255.2 Gateway: 010.0	IP: 010.000.008.222 Mask: 255.255.000.000 Gateway: 010.000.008.254										

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

DCON Utility Pro PC V 4.0.0.1

₹ ► Ⅱ ₽ 	CMD	I	1			FAQ
⊡ COM10:*	ID	Address	Baud Rate	Checksum	Format	Status
 ET-87P8:01:A:0:N81:0 -87018:02:A:0:N81:0 -87017Z:03:A:0:N81:0 -87028U:04:A:0:N81:0 -87054:05:A:0:N81:0 	ET-87P8 -87018 -87017Z -87028U -87054	1[01h] 2[02h] 3[03h] 4[04h] 5[05h]	115200 115200 115200 115200 115200	Disabled Disabled Disabled Disabled Disabled	N,8,1 N,8,1 N,8,1 N,8,1 N,8,1	Auto Config. Ena 87PN Slot 0 87PN Slot 1 87PN Slot 2 87PN Slot 3

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

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