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# How to use the WP-8847 to connect ET-7018Z and ET-7044D and develop the HMI program by InduSoft, VS2008 C#, and VB.NET?

This document shows how to use the WP-8xx7's ethernet port to connect the ET-7018Z and ET-7044D modules. The ET-7018Z is for measuring maximum 10 channel temperture inputs. The ET-7044D is for outputing max 8 channel Digital outputs. There are three HMI sample programs in this example. One is written in InduSoft, another one is written in C#.NET, the other one is written in VB.NET. Following is the architecture of the example:



For further information about the ET-7000 series product, please refer to the following page. http://www.icpdas.com/en/product/guide+Remote\_I\_O\_Module\_and\_Unit+Ethernet\_I\_O\_Modu les+ET-7000\_ET-7200#650



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# **Reference:**

User manual of the ET-7000 series:

http://www.icpdas.com/en/download/show.php?num=2217&nation=US&kind1=6&kind2=8&mode I=&k=ET-7000

Please download the MiniOS7 Utility:

http://www.icpdas.com/en/download/show.php?num=1053&nation=US&kind1=6&kind2=17&mod el=&kw=MiniOS7

More information about the WP-8xx7 series product:

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

ser manual of the ISaGRAF can be found in :

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

More information about connecting modbus device please refer to the ISaGRAF manual chapter 8:

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

Please refer to "FAQ113.pdf". This document shows how to connect the Modbus TCP device by ISaGRAF PAC.

https://www.icpdas.com/en/faq/index.php?kind=280#751  $\rightarrow$  113

Basic operations with InduSoft project.

http://www.icpdas.com/en/download/show.php?num=1619&nation=US&kind1=&model=&kw=Ind usoft

Please refer to the chapter 6 and chapter 10 of the "WP-8xx7 Getting Started manual" for programming C#.NET and VB.NET in WP-8xx7.

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

You can download the document and sample program in :

https://www.icpdas.com/en/faq/index.php?kind=280#751  $\rightarrow$  126



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After setting the ET7018Z's IP, run the IE browser and type-in IP address of the

ET-7018Z(ex:http://192.168.1.163/)Account & Password : Admin ) Click "configuration menu $\rightarrow$  Module I/O Setting" on the left menu. Scrolling down the page to find the "ModBus Setting (AI Basic Setting)". All of the channel(ch0~ch9) must be set to "T/C K-type" in this example.

For the ET-7044D, only the IP address need to be set, no other settings needed.

# ET-7018Z Mofule I/O Setting

Main Menu		Submit						
Configuration	Modbus S	Modbus Settings (Al Basic Setting)						
🗀 Network Settings		Range (40427)	Enable (0 <u>0595</u>					
Basic Settings	Ch0	[0F] T/C K-type, -270°C ~ 1372°C	OFF ON O					
Module I/O Settings	Ch1	[0F] T/C K-type, -270°C ~ 1372°C						
	Ch2	[0F] T/C K-type, -270°C ~ 1372°C						
🕒 Web HMI	Ch3	[0F] T/C K-type, -270°C ~ 1372°C						
🛄 Web Edit	Ch4	[0F] T/C K-type, -270°C ~ 1372°C						
Pair Connection	Ch5	[0F] T/C K-type, -270°C ~ 1372°C						
More Information	Ch6	[0F] T/C K-type, -270°C ~ 1372°C						
	Ch7	[0F] T/C K-type, -270°C ~ 1372°C						
	Ch8	[0F] T/C K-type, -270°C ~ 1372°C						
	Ch9	[0F] T/C K-type, -270°C ~ 1372°C						

#### ET-7044D WebHMI

🔲 Web HMI					
Web Edit					
- Pair Connection					
	No		Register	Status/Action	
More Information	DOO	0		OFF	
	D01	1		OFF	
	DO2	2		OFF	
	DO3	3		OFF	
	DO4	4		OFF	
	DO5	5		OFF	
	DO6	6		OFF	
	D07	7		OFF	
	Communication Status	S:	Good.		
	MainPage 💙 Go				



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122: Illustrat	tion of this ISaGE	AF examr	le proiect					
There are three	programs in this	example p	roject : the "st?	l","m b7	'xsa"and "m l	b7xsb".		
			-	· _	—			
-6	ISaGRAF - FAQ126	B - Program	s					
File	<u>M</u> ake <u>P</u> roject <u>T</u> ool	s De <u>b</u> ug <u>O</u>	ptions <u>H</u> elp					
	🖬 😔 🔟 🗈 🛙	È 💼 🐺	💥 🕪 📖 🕅	🞗 🛄 🖏				
Begi	n: 💌 st	1 set as slow	v mod					
	en 🖮	b7xsa rea	ad 7018z Al and write	7044 DO 0-	3			
Seq	uential: 🛛 😫 m	_b7xsb wr	ite 7044 DO address	4~7				
Eile File Begi	Make Project Tool	s De <u>b</u> ug <u>O</u> <b>b</b> m <del>v</del> set as slow <b>b7xsa</b> rea <b>b7xsb</b> wr	s ptions <u>H</u> elp ∡ ∎	<b>♀ ⊞ ℃</b> :7044 DO 0- 4~7	3			

### Varible Definition

Name	Туре	Attribute	description
ok,ok2	Boolean	Internel	Estimating program execute correctly.
DO00~DO07	Boolean	Internel	Setting ET-7044D module's D/O channel. Varible's network address is 11~18.
tmp	Boolean	Internel	Estimating PLC mode in "st1" program.
init	Boolean	Internel	Initial value is true. Let "st1" program execute once.
Temper0~9	Integers	Internel	Reading the ET-7018Z A/I value. Varible's Network address is 1~9.
MBus_Net_ID1_TCP	Integers	Input	This is 7018Z's Net ID for setting project's I/O connection.
MBus_Net_ID2_TCP	Integers	Input	This is 7044S's Net ID for setting project's I/O connection.
connect_state1	Integers	Input	ET-7018Z's connecting state.
connect_state2	Integers	Input	ET-7044D's connecting state.
timer	Timer	Internel	ET-7044 D/O switching time.

		_						
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I/O connection :								
0       →								
1. <b>Device_IP</b> :	ET-7000 module	's IP addre	ess.					
2.Device_NET_ID	• : Modbus TCP	Slave's de	vice ID, default	value is	1.			
3. <b>Timeout</b> :com	munication tim	eout settii	ng. Unit is ms.					
4. <b>Min_Wait</b> :wa	aiting time in ms	before se	nding next req	uest com	nmand.			
5. <b>Which LAN</b> :u	sing which LAN	port to co	nnect modbus	TCP devi	ices. Default se	etting is 0.		
0:Auto Selectir	ng port LAN1/2	2. 1:alwa	ays selecting LA	N1. 2	always selecti:	ng LAN2.		
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#### "m\_b7xsb" SFC program :

The following SFC program will switch to ouput the next D/O variable after a period of time (default is 3 seconds).



## Downloading the "FAQ126b" to the WP-8847:

1.Click "Link Setup". Then select "ETHERNET" option, if you download project via ehernet. Click "Setup" to set the WP-8847's IP and Port Number 502.



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2. Click "Make Ap	ETHERN Interne Port nu The librat that t oplication"	IET link par         t address:         mber:         Workbench u         y for TCP-IP c         his file is corre         F - FAQ1261         Project Tool         DI DI TOS	192.168.1.165         502         ses the WINSOCK.E         communications. Ens         ctly installed on the H         disk.         B - Programs         s       Debug       Options         Image: Set as set with model         1       set as set with model	LL DLL hard	<u>Ω</u> K <u>C</u> ancel		
	Sequential:		b7xsa Make a	pplication c	ode 7044 DO 0~3		
	Sequenciai	E u	_ <b>U/XSU</b> Write/U4	44 DO addr	ess 4~/		
3. Then click deb	ug→to downloa	d the ISaG	RAF project to	the PAC	•		
	File       Make       Project       Tools       Debug       Options       Help         Image: Still set as slow mod       Image: Still set as slow mod       Image: Debug       Debug       On 3         Sequential:       Image: Tools       Image: Tools       Image: Tools       Image: Tools       Image: Tools						
	SaGRAF - FA File <u>Control I</u> col ÌL ≈ RUN aNowe Downlo	AQ126B - D s Options b N Db d=0 ad	ebugger Help 🔆 🎢 🗭 current=11	maxi	mum=13 ov	verflow=0	
	Version for ICP-DAS	i-7188 <b>/</b> -8000	MView/Mincon serie	es controlle	rs only		
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#### 1.3 : HMI program by InduSoft

ISaGRAF program is running in the WP-8447 as listed in section 1.2.2. InduSoft can access ISaGRAF's varibles if each varible has been set one "Network Address". The following steps shows how to set the InduSoft project to access ISaGRAF varibles.

1. Please check varible in the ISaGRAF project. All variables must be assigned with a network address for the HMI software to access them.

Booleans Integers/Reals Time	rs Messages	FB instance	es Defined words
Name	Attrib.	Addr.	Comment
TemperO	[internal,intege	r] 0001	7018z tempture value
Temper1	[internal,integei	r] 0002	
Temper2	[internal,integei	r] 0003	
Temper3	[internal,integer	r] 0004	
Temper4	[internal,integer	r] 0005	
Temper5	[internal,integei	r] 0006	
Temper6	[internal,integei	r] 0007	
Temper7	[internal,integei	r] 0008	
Temper8	[internal,integei	r] 0009	
Temper9	[internal,integei	r]000A	
MBusNet_ID1_Tcp	[input,integer]	0000	Net ID number to set by 7018z
MBusNet_ID2_Tcp	[input,integer]	0000	Net ID number to set by 7044
Connect state1	[input,integer]	0000	
Connect_state2	[input,integer]	0000	
—			

2. Select "Common" then right click on "Drivers" to run "Add/remove driver"



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Author       Raven Liu       Version       1.0.0       Date       Jun, 2010       Page       13/20         3. Select "MOTCP" and click "OK".	Author       Raven Liu       Version       1.0.0       Date       Jun. 2010       Page       13 / 20         3. Select "MOTCP" and click "OK".             Communication Drivers       Image: Communication Drivers       Image: Communication Drivers       Image: Communication Drivers
<text><text><image/></text></text>	3. Select "MOTCP" and click "OK".
<image/>	Communication Drivers       Available drivers:       DLL     Description       MFC     MFC, Fascitec - Single-loop - MFC (NT-2000-9x) [v1.04]       MISIC     DEL22 MISIC Protocol - DED022 Controller (NI-2000-
4. Right click on the "MOTCP" and then click "Insert"	MITSU MITSUBSHI Protocol MelsecA (XP/Vista/CE) [v10.3] MITSU MITSUBSHI Protocol, FX Series (2000-9x-CE) [v10.3.1-Be MODBU MODBUS Protocol RTU/ASCII (NT-2000-9x-CE) [v10.3] MODPL MODBUS Protocol NT-9k] [v1.08] MODSL Protocol ModBus Slave(ASCII and RTU)[Serial and TCP/I MOLOW MOLOW Protocol RTU/ASCII (NT-2000-9x) [v1.00] MOTCP MODBUS Protocol RTU via TCP/IP (NT-2000-9x-CE) [v10 ♥ Select >> Selected drivers: DLL Description >> Remove OK Cancel
Workspace         Project: faq1260527.APP         Divers         OfC         TCP/IP         Leip	4. Right click on the "MOTCP" and then click "Insert"
	Workspace         Project: faq1260527.APP         Divers         OPC         Insert         Settings         Help

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5. Insert 3 Data InduSoft tags	Sheets, used to	,then follo o "mo701	ow the set 8z[x]" and	tting listed in th d their address	ne follow are deci	ving diagrai mal.)	m. (Nc	ote: Please	add
	Des	cription:							
	701	7018Z AI read							
	Rea	ad Trigger:	F	Enable Read when	Idle:	Read Complete	ed:	_	
				1					
	Write	e Trigger:	L	Enable Write on Ta	g Change:	Write Complete	ed:		
	Stati	ion:		Header:					
	127	7.0.0.1:502:1		4×:0					
				Tag Name				_	
	1 m	no7018z[0]					1		
	2 m	no7018z[1]					2		
	3 m	no7018z[2]					3		
	4 m	no7018z[3]					4		
	5 m	no7018z[4]					5		
	6 m	no7018z[5]					6		
	7 m	no7018z[6]					7		
	8 m	no7018z[7]					8		
	9 m	no7018z[8]					9		
	10 m	no7018z[9]					10		

Description: DOwrite Read Trigger: Write Trigger:	Enable Read when Idle:	Increase priority  Read Completed:      Write Completed:	Read Status:
DOwrite Read Trigger: Write Trigger:	Enable Read when Idle:	Increase priority Read Completed:	Read Status:
Read Trigger: Write Trigger:	Enable Read when Idle:	Read Completed:	Read Status:
Write Trigger:	Enable Write on Tag Chang	e: Write Completed:	Write Status:
Station	Header:		
Chations	Header:		
otation.			
127.0.0.1:502:1	0×:0		
			MidX:
	Tag Name		Address
1 mo7044[0]		11	
2 mo7044[1]		12	
3 mo7044[2]		13	
4 mo7044[3]		14	
5 mo7044[4]		15	
6 mo7044[5]		16	
7 mo7044[6]		17	
8 mo7044[7]		18	

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Author	Raven Liu	Version	1.0.0	Date	Jun. 2010	Page	15 / 20
	Description: timer read Read Trigger: Write Trigger: Station: 127.0.0.1:502:1		Enable Read wh 1 Enable Write on 1 Header: 4×:0 Tag Name	en Idle: Tag Chang	ge: Write Comple	rease priority eted:	
	1 timer					20	-
6.The amount of created.	"#" means the a	amount of	character can	be displa	ayed on the so	creen after	a text object
	Object Propertie	es e Hint:	K Cut Copy Copy Copy Copy Cut Cut Copy Cut Cut Cut Cut Copy Cut Cut Cut Cut Cut Cut Cut Cut Cut Cut	Ctrl+X Ctrl+C			
	Tag/Expression: Minimum Value: Maximum Value: E-Sign VK:	<use defa<="" th=""><th>Te Input Enable</th><th>ext Text I/O G Fmt: Confirm [</th><th>Auto Size Auto Size</th><th></th><th></th></use>	Te Input Enable	ext Text I/O G Fmt: Confirm [	Auto Size Auto Size		
		ICP DAS	Co., Ltd. Techr	ical Docu	ument		

Author     Raven Liu     Version     1.0.0     Date     Jun. 2010     Page     16 / 20       Object Properties     Replace     Hint:     Text I/D     Image: Text I/D	
Object Properties     Image: Second se	_
Tag/Expression:   isanet     Object Finder     Selection:   isanet     Index   O   Index   O   Index   O   Index   O   Index   O   Index	
7.Because the ET-7018Z A/I value is ranging between -32768 and 32767. Then scaling the A/I value t proper temperture value is necessary by adding the if(mo7018z[0]=32767,"broken",mo7018z[0]/23 statement.	5 a .88)
Object Properties	
Image: Security:       Image: Security:       Image: Security:       Image: Security:	

ithor	1	1					
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justing theET- modify the "ti (timer>5,3000 Object ) On Do	7044D D/O switt mer" value in th ,timer*1000)" st Properties Replace Hint wn On While On L	ching time e ISaGRAF pr atement to t	e: rogram pro the "timer" ta Command	perly,plu ig.	wase add the	D0	
wnload The li	nduSoft Applic	sation to the	WP-8447 : er.exe.	Config	or 1~5 se	ec (	
© 0525 © Bin © Drv © FAQ: © FQ © NTDI © CESE © Code ©	TEST 1260527 EMO op.ini erver.exe eMeter.exe eMeter.exe eMeterUS.wbb VebSvc.dll api.dll api.dll proxy.dll pro	236 bytes 393KB 208 bytes 17.5KB 1.29MB 396KB 112KB 50KB 4KB 19.5KB 126KB 97KB 522KB 248 bytes	File Folder File Folder File Folder File Folder File Folder File Connection st IN Act Act Act Act Act Act Act Act Act IP(s): 192.16 OUT File	5) 5) 5) <b>gent (v6.</b> atus: d to remote tion via Nel 8.1.165 8.1.165 5) ension 5) 6)	(25/2010 11:33 A (24/2010 2:30 PM (24/2010 2:30 PM (27/2010 12:36 F B) client client cwork Start gtup Exit (24/2010 5:32 PM (1/2010 11:31 AM		

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2. click "Project	→ Execution En	vironment" in PC In Web Studio - [Display1] View Insert Project Ioo View Insert Project Ioo	duSoft develo	opment enviro	onment.	
		형 레 패 배   ‡에 묶	ਅ ±   ≒ †↓	φ.		
	Workspace		🔺 × 🛛 🔣 Displ	ay1		
		reens roup Screen Veb Pages ymbols raphics Script ibrary ayout				
3 To connect th	$\sim M/P_{\rm Syv7}$ cho	ose the "Network IE	" ontion and t	whatha BAC	ID address	
Thop click "co	opport" to copp	ose the BAC	option and t	spe the FAC	ir auuress.	
Еже	cution Environment	i			×	
	rget <u>Application</u> <u>In</u> arget Station <u>Local</u> <u>Network IP</u> <u>192</u> <u>Serial Port</u> <u>COM</u> <u>Microsoft ActiveSyr</u>	nport CE License	Connect Status: Platform: Install system fil	Disconnect	ver files Close	

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4. Choose "Application" tab and click "Send to Target" button to download the application to the PAC.

Execution Environment	×
Target Application Import CE License	
Local: <u>Settings\Stephen\My Documents\InduSoft Web Studio v6.1 Projects\faq1260528\</u> Target: \Micro_SD\InduSoft\faq1260527\	
Send To Target     ✓ Only newer files     Run     Status:       Send File     Stop	
	se

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L.4:HMI progr	am by C#.NET	or VB.NET20	800				
he C#.NET and aribles.Please r	VB.NET progra efer to the cha	m can call fu pter 6 and c	inctions in hapter 10 c	the "quicke of the WP8x	rbet.dll" to ac x7 getting sta	cess ISaGR/ rted manua	AF al.
ttp://www.icpo	las.com/en/do	wnload/sho	w.php?nun	n=333&nati	on=US&kind1	=&model=8	&kw=isagraf
unction used ir	n this example	:					
ScanAl(): Rea	ding all ET-701	8Z's module	A/I varible				
ScanDO( ):Rea	ding all ET-704	4D's module	D/O varibl	e.			
JserGetReg_Sho	ort(): Readin	g a word val	lue from ISa	aGRAF.			
JserSetReg_Sho	ort ( ):Writing	a word valu	e from ISaG	GRAF.			
JserGetCoil( ):	Reading a boo	lean value fr	om ISaGRA	.F.			
JserSetCoil( ):	Writing a boole	ean value fro	om ISaGRAI	Ξ.			
Running the pro	ogram						
L.download the	ISaGRAF progr	amto the PA	C.				
2.Copy the "faq: 'QuickerNet.dll'	126demo_c_sh ' for VB.NET.) t	arp.exe" and o the \Syste	d "quickern m_disk\ dir	et.dll" for ectory and	<sup>•</sup> c# program(' then run it.	'faq126_VB	B_demo" and
	faq126dem ET7018z SYNNEX quickemet. 1.0.0.9 ICPDAS Qu	o_c_shero HII bickerNET d		ET7018 Program 28 KB	<b>z</b> 1 Debug Database		