Industrial 2G/3G module

I-8212W/I-8213W

I-8212W-3GWA/I-8213W-3GWA

User Manual

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

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Chapter 1 Introduction

The I-8212W/I-8213W is an industrial Quad-band GSM/GPRS module with GPS function (only I-8213W) that work on frequencies of 850/900/1800/1900 MHz. The I-8212W-3GWA/I-8213WA is an industrial Tri-band 3G module with GPS function (only I-8213W-3GWA) that work on frequencies of WCDMA 2100/1900/850 MHz and GSM 850/900/1800/1900 MHz. These modules utilize the 2G/3G network for convenient and inexpensive data transfer from remote instruments, meters, computers or control systems in either live data or packet data. These modules have the integrated TCP/IP stack so that even simple controllers with serial communications ports can be connected to the modem without the need for special driver implementation. With the features of theirs, the systems can be SMS and GPRS or 3G connection applications with our PAC series like iPAC-8000, WinPAC-8000, LinPAC-8000 or XP-8000.



Chapter 2 Hardware Specifications

2.1.1 I-8212W/I-8213W



2.1.2 I-8212W/I-8213W Specifications

Models	I-8212W	I-8213W
GSM/GPRS System	•	
GPRS/GSM		
Quad-band	850/900/1800/1900 MHZ	
GPRS Multi-slot	Class 10/8	
GPRS Mobile	Class B	
Station		
GPRS Class 10	Max. download speed 85.6 kbp	s; Uplink transfer: Max 42.8 kbps
CSD	Up to 14.4 kbps	
Compliant to GSM	MT, MO, CB, Text and PDU mo	ode
Phase 2/2+		
Coding Schemes	CS 1, CS 2, CS 3, CS 4	
SMS	Text and PDU Mode	
GPS System	1	L
Support Channels	-	32
		Tracking = up to -159 dBm (with
Sensitivity	-	external LNA) Cold start = up to
		-146 dBm (with external LNA)
	-	Hot start (Open Sky) = 2
Acquisition Time		sec.(typical)
		Cold start (Open Sky) = 36
		sec.(typical)
Protocol Support	-	NMEA 0183 version 3.01
LED Indicators	1	
Power	Red color	
GSM/GPRS	Yellow color	
GPS	-	Green color
Power		
Frame Ground	ESD Surge EET Hi Det	
Protection		
Power	Idle: 0.16 A @ 5.V_ \therefore Dete Link: 0.2 \therefore 1.64 A (peak) @ 5.V	
Consumption	$H(0, 0, 10 \land \oplus 0, V_{DC}, Data Link, 0.2 \sim 1.04 \land (peak) \oplus 0, V_{DC}$	
Mechanical		
Casing	Plastic	
Dimensions	30 mm x 85 mm x 114 mm	

(W x L x H)	
Environment	
Operating	
Temperature	-25 C~+75 C
Storage	
Temperature	-30 C ~ +80 C
Humidity	5 ~ 95% RH, non-condensing

Note1: The default setting of GSM/GPRS module is as following on I-8212W/I-8213W.

Parameters	Default value
Baud rate	115200 bps
Parity	None
Date bit	8
Stop bit	1

Note2: The default setting of GPS module is as following on I-8213W.

Parameters	Default value
Baud rate	9600 bps
Parity	None
Date bit	8
Stop bit	1

2.1.3 I-8212W/I-8213W Features

- > Quad-band GSM/GPRS Modem Operating on 850/900/1800/1900 MHz
- ➢ 4 KV ESD Protection
- > Designed for GPRS and SMS Applications
- Support TCP Server, TCP Client, UDP Client Connection stack from GPRS
- > Support Standard AT Commands
- LED Indicators for Power, GSM and GPS(only I-8213W) Indication
- > High Reliability in Harsh Environment
- Support 32-channels GPS and NMEA v0183 v3.01(only I-8213W)
- PPS: 100 ms pulse output/sec for precise timekeeping and time measurement(only I-8213W)
- Support XP-8000, WinPAC-8000, LinPAC-8000, ViewPAC, iPAC-8000

2.2.1 I-8212W-3GWA/I-8213W-3GWA



2.2.2 I-8212W-3GWA/I-8213W-3GWA Specifications

Models	I-8212W-3GWA	I-8213W-3GWA	
3G System			
Frequency Band	UMTS : 2100/1900/850 MHz		
Data Transmission	UMTS / HSDPA / HSUPA		
Data Transmission	Downlink transfer: Max. 7.2Mbps; Uplink transfer: Max 5.76Mbps		
GSM/GPRS System			
Frequency Band	850/900/1800/1900 MHz		
GPRS connectivity	GPRS class 12/10; GPRS station	on class B	
DATA GPRS	Downlink transfer: Max. 85.6 kb	ops; Uplink transfer: Max 42.8kbps	
CSD	Max. download speed 85.6 kbp	s; Uplink transfer: Max 42.8 kbps	
Coding Schemes	CS 1, CS 2, CS 3, CS 4		
SMS System	• •		
SMS	MT, MO, CB, Text and PDU mo	ode	
GPS System			
Support Channels	-	32	
		Tracking = up to -159 dBm (with	
Sensitivity	-	external LNA) Cold start = up to	
		-146 dBm (with external LNA)	
	-	Hot start (Open Sky) = 2	
Acquisition Time		sec.(typical)	
Acquisition nine		Cold start (Open Sky) = 36	
		sec.(typical)	
Protocol Support	-	NMEA 0183 version 3.01	
LED Indicators			
Power	Red color		
GSM/GPRS	Yellow color		
GPS	-	Green color	
Power			
Frame Ground			
Protection	ESD, Surge, EFT, MI-POT		
Power			
Consumption	$1000.0.10 \text{ A} \otimes 5 \text{ V}_{\text{DC}}$, Data Link. $0.2 \sim 1.04 \text{ A}$ (peak) $\otimes 5 \text{ V}_{\text{DC}}$		
Mechanical			
Casing	Plastic		
Dimensions	30 mm x 85 mm x 114 mm		

(W x L x H)	
Environment	
Operating	
Temperature	-23 C~+73 C
Storage	
Temperature	-30 C ~ +80 C
Humidity	5 ~ 95% RH, non-condensing

Note1: The default setting of the module is as following on I-8212W-3GWA/I-8213W-3GWA.

Parameters	Default value
Baud rate	115200 bps
Parity	None
Date bit	8
Stop bit	1

Note2: The default setting of GPS module is as following on I-8213W-3GWA.

Parameters	Default value
Baud rate	9600 bps
Parity	None
Date bit	8
Stop bit	1

2.2.3 I-8212W-3GWA/I-8213W-3GWA Features

- Supports Tri-band UMTS 2100/1900/850 MHz and Quad-band GSM 850/900/1800/1900 MHz
- ➢ 4 KV ESD Protection
- > Designed for WCDMA, GPRS and SMS Applications
- Supports TCP Server, TCP Client, UDP Client Connection stack from 3G or GPRS
- > Support Standard AT Commands
- > LED Indicators for Power, GSM and GPS(only I-8213W-3GWA) Indication
- > High Reliability in Harsh Environment
- Support 32-channels GPS and NMEA v0183 v3.01(only I-8213W-3GWA)
- PPS: 100 ms pulse output/sec for precise timekeeping and time measurement(only I-8213W-3GWA)
- Support XP-8000, WinPAC-8000, LinPAC-8000, ViewPAC, iPAC-8000

Chapter 3 Application architecture

Application 1

Industrial Quad-band GSM/GPRS Module



Application 2



Application

Control Center

Chapter 4 Hardware Appearance

4.1 Pin Assignments

≻ I-8212W



≻ I-8213W



➢ I-8213W-3GWA



➢ I-8213W-3GWA



4.2 Hardware Dimensions

▶ I-8212W / I-8212W-3GWA



▶ I-8213W / I-8213W-3GWA



4.3 LED indicators



There are three LED indicators to help users to judge the various conditions. The description is as following :

• PWR(Red) : The PWR LED can indicate the status of Power module.

Power normal	Power fail
Always on	Always off

 GSM/GPRS (Yellow) : The modem LED can indicate the status of GSM module for I-8212W/I-8213W.

Modem normal	Modem fail
	Off
Blanking (3 sec)	or Blanking (not 3 sec)

 3G (Yellow) : The modem LED can indicate the status of GSM module for I-8212W-3GWA/I-8213W-3GWA.

Modem normal	Modem fail
	OFF
Blanking (0.8 sec)	or
	ON

 GPS (Green) : The GPS LED can indicate the status of GPS module.(I-8213W / I-8213W-3GWA only)

GPS Fail	Search GPS	Receive GPS data
Always off	Always on	Blanking (1 sec)

Chapter 5 Hardware Installation

5.1 SIM card Installation



5.2 Antenna Installation



5.3 Install I-8212W/ I-8213W / I-8212-3GWA / I-8213-3GWA module

5.3.1 XP-8000 (Windows Embedded Standard 2009)

- Install module.
- 1. Install the module on the XP-8000.

2. Rotate the Rotary Switch as "2". To disable EWF (ENHANCED WRITE FILTER).



- 3. Reboot your XP-8000
- 4. After reboot, execute the "Multi-Port IO module Register Wizard".
 - 4.1 Open Multi-Port IO Module Register Wizard, Start => ICPDAS => Multi-Port IO Module Register Wizard



4.2 Register the module and select "Exit"

🌯 Mutti-Port IO Module Wizard 🛛 🛛 🔀	🍨 Mutti-Port 10 Module Wizard 🛛 🛛 🔀
File Help	File Help
 Slot 1: 8213 Port1 - UnRegistered Port2 - UnRegistered Slot 2: Slot 3: Slot 3: Slot 4: Slot 5: Slot 5: Slot 6: Slot 7: 	□-Slot 1: 8213 COM6 COM7 Slot 2: Slot 3: Slot 4: Slot 5: Slot 6: Slot 7:
Remove All Register All Exit	Remove All Register All Exit

4.3 Select "OK" and reboot.





4.4 After reboot, XP-8000 will install ports of the module.

5 After finishing, rotate the Rotary Switch as "0" to enable EWF.



- Uninstall module
- 1. Rotate the Rotary Switch as "2" to disable EWF.



- 2. Reboot your XP-8000
- 3. After reboot, ensure the module is installed on XP-8000 and execute the "Multi-Port IO module Register Wizard".
 - 3.1 Open Multi-Port IO Module Register Wizard,
 - Start => ICPDAS => Multi-Port IO Module Register Wizard



3.2 Remove module and select "Exit"

💐 Mutti-Port IO Module Wizard 🛛 🛛 🔀	💐 Mutti-Port IO Module Wizard 🛛 🛛 🔀
File Help	File Help
Slot 4: Slot 5: Slot 6: Slot 7:	Slot 3: Slot 4: Slot 5: Slot 6: Slot 7:
Remove All Register All Exit	Remove All Register All Exit

3.3 Select "OK" and reboot.

COM Port	Setting Changes
i	You must restart this computer for the changes to take effect
	ΟΚ
Warning	
Warning	Would you like to restart windows for taking effect this change

3.4 After reboot, XP-8000 will remove ports of the module.



4 After finishing, rotate the Rotary Switch as "0". To enable EWF.



> The slot corresponds to com port number of I-8212W or I-8212W-3GWA



> The slot corresponds to com port number of I-8213W or I-8213W-3GWA



5.3.2 WinPAC-8000 (WinCE 5.0 Based)

- Install the module
- 1. Install the module on the WinPAC-8000
- 2. Reboot your WinPAC-8000
- 3. After reboot, execute the "WinPAC Utility".
 - 3.1 Select the "USE COMx" and then click the "Set" button.

WinPAC Utility [2.0.1.5]		
File Help Configuration		
Ethernet Setting FTP Setting Syste	em Information Auto Execution Multi-serial port wizard System 🔳 🕨	
Ethernet Setting FTP Setting System Slot 0: 8213 Mismatch Slot 1:	am Information Auto Execution Multi-serial port wizard System Image: System Image: System Image: System Image: System Install driver (Apply to I-8112/8114/8142/8144 series modules) Image: Step1: Step1: Set USE MSA/MSBx Step2: Go to Fine Save and Rebook to enable driver Image: Save and Rebook to enable driver	
WinPAC Utility [2.0.1.5]		
File Help Configuration		1 /
Ethernet Setting FTP Setting Syste	em Information Auto Execution Multi-serial port wizard System	
Slot 0: 8213 Slot 1: Slot 2: Slot 3: Slot 4: Slot 5:	SlotD:8213 COM6 COM7 Driver enabled Oriver disabled	
Slot 6:	Install driver (Apply to I-8112/8114/8142/8144 series modules)	
Slot 7:	Step1: Set Set USE MSA/MSBx Step2: Go to "File">"Save and Reboot" to enable driver	

3.2 Save and Reboot parameters

	WinPAC Utility [2.0.1.	5]
Ī	File Help Configura	ition
	Save	0
	Save and Reboot	
	Restore Default Setting	s ma
ŀ		
	Slot 2:	
	Slot 3:	N
Warning !		
Would you	like to save the settings a	and reboot the device?
	Yes No]

4. After reboot, execute the "WinPAC Utility" to check.

WinPAC Utility [2.0.1.5]			
File Help Configuration			
Ethernet Setting FTP Setting	System Information	Auto Execution	Multi-serial port wizard System
Slot 0: 8213		6 7	Driver enabled
Slot 2:			
Slot 3:			
Slot 4:			
Slot 6:	Install driv	· <u>er</u> (Apply to I-8	112/8114/8142/8144 series modules)
Slot 7:	Step1:	Set	USE MSA/MSBX
Slot scan (Refresh)	Step2: Go to	"File">"Save	and Reboot" to enable driver

- Uninstall the module
- 1. Remove the module on the WinPAC-8000
- 2. Reboot your WinPAC-8000
- 3. After reboot, execute the "WinPAC Utility".
 - 3.1 Click the "Set" button to remove driver.

WinPAC Utility [2.0.1.5]	
File Help Configuration	
Ethernet Setting FTP Setting System Information Auto Execution Multi-serial port wizard System 💶 🕨	
Slot 0: Mismatch Slot 1: COM6 Slot 2: COM7 Slot 3: COM7 Slot 3: COM7 Slot 5: COM7 Slot 6: Install driver (Apply to I-8112/8114/8144 series modules) Slot 7: Step1: Slot scan (Refresh)	
WinPAC Utility [2.0.1.5]	
	/
Ethernet Setting FTP Setting System Information Auto Execution Multi-serial port wizard System Slot 0:	

3.2 Save and Reboot parameters

	WinPAC Utility [2.0.1.5]
	File Help Configuration
	Save
	Save and Reboot
	Reboot Without Save
	Restore Default Settings ma
	Exit
	Slot 2:
	Slot 3:
Warning !	
would yo	u like to save the settings and reboot the device?
	Yes No

5.3.3 iPAC-8000 (miniOS7 Based)

1. Turn on the power of your iPAC-8000 after install the module on your iPAC-8000.

2. The slot corresponds to com port number below.

I-8212W / I-8212W-3GWA



▶ I-8213W / I-8213-3GWA



5.3.4 LinPAC-8000 (Linux kernel 2.6 based)

1. Turn on the power of your LinPAC-8000 after install the module on your LinPAC-8000.

2. The slot corresponds to com port number below.

I-8212W / I-8212W-3GWA



I-8213W / I-8213W-3GWA



Chapter 6 GPRS connection

- 6.1 XP-8000 (Windows Embedded Standard 2009)
- Hardware requirement
 - 1) I-8212W/I-8213W/I-8212W-3GWA/I-8213W-3GWA
 - 2) XP-8000



XPAC-8000

+



I-8212W/I-8213W

Create a new modem connection

Step1. Control Panel \rightarrow Double-click "Phone and Modem Options"



Step2. Set the area code for the first time \rightarrow Click "OK"

Location Information	? 🗙
	Before you can make any phone or modem connections, Windows needs the following information about your current location. What country/region are you in now?
	United States
	If you dial a number to access an outside line, what is it?
	The phone system at this location uses:
	© Tone dialing C Pulse dialing 2. OK Cancel

Step3. Control Panel → Double-click "Phone and Modern Options" → Modern → Click "Add"

Modem	At	tached To	
	1.4.8		Lat.

Step4. Select "Don't detect my modem; I will select it from a list." → Click "Next"



Step5. Select "Standard Modem Types" → Select "Standard 19200 bps Modem"

→ Click "Next"



Step6. Select your COM Port to connect to the modem \rightarrow Click "Next"

Add Hardware Wizard Install New Modem Select the port(s) you	want to install the modem on.
	You have selected the following modem: Standard 19200 bps Modem On which ports do you want to install it? C All ports ociocode ports COM1 Comz Comz Cancel

Step7. Click "Finish" to finish the install new modem.

Add Hardware Wizard	1
Install New Modem Modem installation i	s finished!
	Your modem has been set up successfully. If you want to change these settings, double-click the Phone and Modem Options icon in Control Panel, click the Modems tab, select this modem, and then click Properties.
	K Back Finish Cancel

Step8. Control Panel \rightarrow Double-click "Phone and Modern Options" \rightarrow Modern \rightarrow Select "Standard 19200 bps Modern" \rightarrow Click "Properties"

Phone and Modem Options	?
Dialing Rules Modems Advanced	
The following modems are installed:	1.
Modem	Attached To
C 😂 Standard 19200 bps Modem	СОМ1
	2
Add R	emove Properties

Step9. Control Panel → Double-click "Phone and Modem Options" → Modem → Select "Standard 19200 bps Modem" → Click "Properties" → Modem → Maximum Port Speed → 115200

Spea	ker volume				
	Low	1	- High		
Maxir	num Port Spo				
	115200			2.	
- Dial C	ontrol				
	Wait f	or dial tone befi	ore dialing		

Step10. Advanced \rightarrow Extra initialization commands:

Note: GPRS's APN must be provided from your Telecom. CO., LTD. For example in Taiwan: AT+CGDCONT=1,"IP","INTERNET" For example in China: AT+CGDCONT=1,"IP"," CMNET"

Standard	1 1 9 2 0 0	bps Mode	m Propert	ies	? 🗙
General	Modem	Diagnos cs	Advanced	Drier	
Extra	Settings			1.	
Extra	initializatio	on commands			
				2]
	and the second second			2.	
					-
			D.(h Dationa	
			hange Defau	it mrererences	J
				(
				ОК	Cancel

Step11. Diagnostics \rightarrow Query Modem \rightarrow Click "OK" Note: If user queries the modem and gets an error message, Please try again.

andard 19200 bps Modem Properties General Modem Diagnostics Ad anced Driver	? ×
Modem Information	
Field Value	
Hardware ID mdmgen192	
Command Response	
	2
Queru Modem	5
Append to Log View log	
).
ОК	Cancel

Step12. Click "OK"

ialing Rules Modems Advanced	
The following modems are insta	lled:
Modem	Attached To
lease and a second seco	COM1

> Create a new dial-up and networking connection

Step1. Control Panel → Network Connections → Click "Create a new connection"

Setwork Connections	
File Edit View Favorites Tools Advanced Help	
Search 🌮 Folders	
Addin ss 🔊 Network Connections	💌 🄁 Go
Network Tasks EAN or High-Speed Internet Image: Create a new connection Image: Create a new connection Image: Sec op a nome or small office network Image: Create a new connection	
See Also	
Network Troubleshooter	
Other Places	
Control Panel My Network Places My Documents My Computer	
Details 🛞	
System Folder	

Step2. Click "Next"



Step3. Select "Connect to the Internet" \rightarrow Click "Next"

New Connection Wizard
Network Connection Type Image: Conne Image: Connection Type
© Connect to the Internet Connect to the Internet so you can browse the Web and read email.
O Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
O Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
O Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
\sim 2
< Back Next > Cancel

Step4. Select "Connect using a dial-up modem" \rightarrow Click "Next"

New Connection Wizard
Internet Connection How do you want to connect to the Internet?
Connect using a dial-up modem This type of connection uses a moder and a regular or ISDN phone line.
Connect using a proadband connection that requires a user name and password
This is a high-speed connection using either a DSL or cable modem. Your ISP may refer to this type of connection as PPPoE.
O Connect using a broadband connection that is always on
This is a high-speed connection using either a cable modern, DSL or LAN connection. It is always active, and doesn't require you to sign in.
2
< Back Next > Cancel

Step5. ISP Name \rightarrow Your GPRS's name \rightarrow Click "Next"

ew Connection Wizard	
Connection Name What is the name of the se	ervice that provides your Internet connection?
Type the name of your ISP in	n the following box.
ISPiname	
The name you type here will	be the name of the connection you are creating.
	2

Step6. Phone Number: \rightarrow Click "Next"

Note: Phone Number must be provided from your Telecom. CO., LTD. For example in Taiwan: *99#

New Connection Wizard
Phone Number to Dial What is your ISP's phone number?
Type the phone number: Phone number: Phone number: Phone number You might need to include a "n" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.
< Back Next > Cancel

Step7. GPRS's User name and GPRS's Password \rightarrow Click "Next"

Note: GPRS's User name and GPRS's Password must be provided from your Telecom. CO., LTD.

New Connection Wiz	ard
Internet Account Ir You will need an a	formation count name and password to sign in to your Internet account.
Type an ISP acco safe place. (If you	unt name and password, then write down this information and store it in a have forgotten an existing account name or password, contact your ISP.)
User name:	
Password:	
Confirm password	
Use this account this computer	int name and password when anyone connects to the Internation
🗹 Make this the	default Internet connection
🔽 Turn on Intern	et Connection Firewall for this connection 2.
	< Back Next > Cancel

Step8. Click "Finish"

New Connection Wizard	
	Completing the New Connection Wizard You have successfully completed the steps needed to create the following connection: Dial-up Connection • Make this the default connection • This connection is firewalled • Share with all users of this computer • Use the same user name & password for everyone The connection will be saved in the Network Connections folder.
	Add a shortcut to this connection to my desktop To create the connection and close this wizard, click Finish.
	K Back Finish Cancel

Step9. Control Panel \rightarrow Network Connections \rightarrow Click "Your GPRS's name" \rightarrow File \rightarrow Properties



Step10. General \rightarrow Select "Standard 19200 bps Modem" \rightarrow Click "Configure"

Area code: Phone number: Alternates Country/region code:	Phone number		Configure.
Country/region code:	Area code:	Phone number:	
Country/region code:	~		Alternates
	Country/region	code;	
Use dialing rules Dialing Rule	Use dialing r	ules	Dialing Rules

Step11. Maximum speed(bps) → Select "115200" → do not select "Enable hardware flow control " → Click "OK"

Modem Configuration	?🔀
Standard 19200 bps Modem (COM1)	
Maximum speed (bps): Modem protocol	~
Laroware features Enable hardware flow control Enable modem compression	
Show terminal window Enable modem speaker OK C	ancel

Connect using: Modem - Standard 19200 bps Modem (COM1) Configure Phone number Area code: Phone number: Alternates Country/region code:	
Modem - Standard 19200 bps Modem (CDM1) Configure Phone number Area code: Phone number: Alternates Country/region code:	Connect using:
Configure Phone number Area code: Phone number: Alternates Country/region code:	Standard 19200 bps Modem (COM1)
Use dialing rules	Configure Phone number Area code: Phone number: Country/region code: Use dialing rules Dialing Rules

Step13. Control Panel → Network Connections → Double-Click "Your GPRS's name"



6	quest
User name:	guest
User name: Password:	•••••
User name: Password: Save this () Me only () Anyone	user name and password for the following users:

Step15. If you connect to internet successfully, your toolbar have new logo

Step14. Click "Dial"

🛃 🧶 🧶 👜 3:49 PM

Step16. You can Double-Click the new logo \rightarrow Click "Details" \rightarrow Get your IP address

Device Type modem Server type PPP Transports TCP/IP Authentication PAP Compression (none) PPP multilink framing Off Server IP address 18:0:8:1 Client IP address 114:137.175.2	Property Device Name	Value Standard 19200 bps Modem #2
Transports TCP/IP Authentication PAP Compression (none) PPP multilink framing Off Server IP address 18.0.8.1 Client IP address 114.137.175.2	Device Type	modem
Authentication PAP Compression (none) PPP multilink framing Off Server IP address 18.8.8.1 Client IP address 114.137.175.2	server type Transports	TCP/IP
Lompression [none] PPP multilink framing Off Server IP address 18.8.8.1 Client IP address 114.137.175.2	Authentication	PAP
Client IP address	Compression PPP multilink framing	(none)
Client IP address (114.137.175.2)	Server IP address	10.0.0.1
	Client IP address	114.137.175.2

6.2 WinPAC-8000 (WinCE 5.0 Based)

- Hardware requirement
 - 1) I-8212W/I-8213W/ I-8212W-3GWA/I-8213W-3GWA
 - 2) WinPAC-8000



WinPAC-8000



I-8212W/I-8213W

Create a new modem connection

Step1. Copy "icpdas_i-821xw_comx_v1.xx.cab" to your WinPAC → Double-Click " icpdas_i-821xw_comx_v1.xx.cab" to install → Select "OK"

Step2. Execute "WinPAC_Utility" \rightarrow File \rightarrow Save and Reboot

WinPAC Utility [2.0.0.5]					×
File Help Configuratio	n				
Save and Reboot 3.	etting FTP Setting	System Information	Auto Execution	Multi-serial port wia	< F
Restore Default Settings E <u>x</u> it		Welcome to This tool will he	use WinPa Ip you easy to us	e Utility e WinPac - 8000.	
Industrial Control Products Data Acquisition Systems	VinPAC	Display: Resolution :	800 * 600	I	
Battery1 : OK		Task Bar Settin	ng:		
Battery2 : OK		Auto Hid	le 🛛 🔽 Alway:	s On Top	
Change HTTP document i	root directory \windo	ws\www\wwwsub to:			
\windows\www\wwwpub	۸.			Setting	

➤ Create a new dial-up and networking connection Step1. Control Panel → Double-Click "Network and Dial-up Connections"

<u>File V</u> iew	1						-		~	№? ×
Ö	P	I	8		9	-	C		22	
Certificates	Date/Time	Dialing	Display	Input Panel	Internet Options	Keyboard	Mouse	Network and Dial-up	Dwner	
P		4	1	2	0			Connections	J 2.	
Password	PC Connection	Power	Regional Settings	Remove Programs	Storage Manager	Stylus	System	Volume & Sounds		
	connoction		ootango	riograno	i lanagoi			0001100		
		1.								
Conti	rol Panel							ŵ.	L) 11:27 A	м 🏓 🚭

Step2. Double-Click "Make New Connection"

File Edit	view Advanced 🗙 👔 🖬 📰	№ ?	×
	🗞 ່ 👌		
Make New	LAN2 LAN1		
Connection	2		
	2.		

	<u></u> 1.	
Network Connec	ions	101 🕹 + 11:28 AM 🏓 🖷

Step3. Key in your name for the connection \rightarrow Select "Dial-Up Connection" \rightarrow Click "Next"

Make New Connection		×
Type a name for the conn	ection:	
My Connection	1.	-
Select the connection typ	e:	
🔵 💽 Dial-Up Connec	tion)	2.
O Direct Connect	tion	
🔵 <u>V</u> irtual Private	Network (P	PTP)
🚫 Vi <u>r</u> tual Private	Network (L	2TP) 🤇
O PPP over Ethe	rnet [PPPol	E] U .
<	Back	<u>N</u> ext >

Step4. Select "ICPDAS I-821xW COMx:" → Click "Configure…"

Modem	\mathbf{X}
My Connection	
Select a modem:	
ICPDAS I-821XW COM	6: 🕑
	Configure
TCP/IP Settings	Security Settings
_	

Step5. Select Baud Rate "115200", Data Bits "8", Parity "None", Stop Bits "1" Note and FlowControl "None"→ Click "Call Options"

Device Prope <mark>rties</mark>		💽 OK 🔀
Port Settings Call Options 2		1
	Connection Pref	erences
Manual Dial (user supplies dial strings)	<u>B</u> aud Rate	115200
Terminals	<u>D</u> ata Bits	8
	<u>P</u> arity	None 🗾
before dialing	<u>S</u> top Bits	1
dialing	Elow Control	None 💌

Step6. Extra Settings \rightarrow Click "OK"

Note: GPRS's APN must be provided from your Telecom. CO., LTD.

For example in Taiwan: +CGDCONT=1,"IP","INTERNET" For example in China: +CGDCONT=1,"IP"," CMNET"

evice Propertie	ន	?	ОКХ
Port Settings Call	l Options		Q
Call Setup ✓ Cancel the ✓ Wait for dia Wait for	call if not connected al tone before dialin <u>c</u> r credit card <u>t</u> one 0	d within 120 seconds	_2.
Extra Settings (sr	pecial modern comma	ands may be inserted into the dia	(ctring)

Step7. Click "TCP/IP Settings..."

lodem			
27	My Connectio	n	
<u>S</u> elect	a modem:		
ICPDA	S I-821xW CC	M6:	<u></u>
		[<u>C</u> onfigure
TCP.	/IP Settings	. S <u>e</u> curit	y Settings

Step8. TCP/IP Settings: Dependant on the requirement of each ISP.

TCP/IP Settings			ок 🔀
General Name Se	ervers		
My Conn	ection 2		
Use server-ass	igned IP addr	es	
	3. A		
Use <u>S</u> lip			
Use s <u>o</u> ftware	compression		
VV Use IP header	^r compression	/	
T(D/D Cattions			6 21
TCP/IP Settings			ок 🔀
TCP/IP Settings General Name Se			OK 🔀
TCP/IP Settings General Name Se	ection 2		OK 🔀
TCP/IP Settings General Name Se My Conn	ection 2	ses	OK X
TCP/IP Settings General Name Se My Conn Use server-as: DNS:	ection 2	ses	
TCP/IP Settings General Name Se My Conn Use server-ass DNS: Alt D <u>N</u> S;	ervers ection 2 signed addres	ses	OK 💌
TCP/IP Settings General Name Se My Conn Use server-as: DNS: Alt D <u>N</u> S: <u>W</u> INS:	ervers	ses	

Step9. Click "Security Settings..."

Modem		×
My Connection).	
<u>S</u> elect a modem:		
ICPDAS I-821XW CON	16:	~
	(Configure
TCP/IP Settings	Security	Settings
	< <u>B</u> ack	Next >

Step10. Security Settings: Dependant on the requirement of ISP ! (Below picture is the setting for HINET).

Security Settings		ок 🗵
Advanced Security Settings		
Use Data encryption		
Logon security:		
Use Extensible Authentication Protocol (EA	P)	
MD5-Challenge		~
	Properties	
 Unencrypted password (PAP) Challenge Handshake Authentication Protoc Microsoft CHAP (MS-CHAP) Microsoft CHAP Version 2 (MS-CHAP v2) Preview user name and password 	col (CHAP)	

Step11. Click "Next"

Modem	
My Connection	
<u>S</u> elect a modem:	
ICPDAS I-821xW COM6	i: 🕑
	Configure
TCP/IP Settings	Security Settings
	< <u>B</u> ack <u>N</u> ext >

Step12. Phone Number: → Click "Finish"

Note: Phone Number must be provided from your Telecom. CO., LTD. For example in Taiwan: *99#

Phone Number		
My Connection		
Country/region code: Area code: Phone number: Eorce long distance Force local	1 425	>
	< <u>B</u> ack	Finish



🐉 🗟 Network Connections	👘 🕹 🕨 11:31 AM 🏓 🖷

Step14. Click "Dial Properties..."

ial-Up Connection	
My Connection	
User Name:	Phone: *99***1# Dial from:
Domain:	Dial Properties
Save password	<u>Connect</u> Cancel

Step15. Click "Dialing Patterns..."

Dialing Properties			🥐 🕅
When dialing from: Work		<u>N</u> ew	<u>R</u> emove
Local settings are: The local <u>a</u> rea code is:	425	Dialing Patt	erns
The local <u>c</u> ountry/region code is:		Olluka	_
Dial using:			

Step16. Key in 'G' to all blocks \rightarrow Click "OK"

Dialing Patterns
Edit the dialing pattern for each type of call to charge be the phone is dialed.
G 2.
G 3. (E,e = Country/Region Code; F,f = Area Code; G,g =
Number)

Step17. GPRS's User name and GPRS's Password → Click "Connect"

Note: GPRS's User name and GPRS's Password must be provided from your Telecom.

CO., LTD.



Step18. If you connect to internet successfully, they will show "Connected"

My Con	nection Status	
27	Connected	
	Hide this message:	Hide
		Disconnect

Step19. Execute "WinPAC_Utility" \rightarrow File \rightarrow Save and Reboot



6.3 LinPAC-8000 (Linux kernel 2.6 based)

- Hardware requirement
 - 1) I-8212W/I-8213W/I-8212W-3GWA/I-8213W-3GWA
 - 2) LinPAC-8000



LinPAC-8000



I-8212W/I-8213W

> Establish a GPRS connection

Modify **/etc/ppp/peers/wavecom** to define COM port first. Please follow the steps as below :

(1) Type " vi /etc/ppp/peers/wavecom "

(2) To find the "Serial device to which the GPRS phone is connected:" statement, and add device name of COM port.

Modify "/etc/ppp/peers/wavecom"

•••••

•••••

Serial device to which the GPRS phone is connected:

/dev/ttyS0 for serial port (COM1 in Windows),

- # /dev/ircomm0 for IrDA,
- # /dev/ttyUB0 for Bluetooth (Bluez with rfcomm running) and
- # /dev/ttyUSB0 #for USB

/dev/ttyS34 # serial port one

/dev/ttyS0 # serial port one

/dev/ttyS1 # serial port two

•••••

•••••

# Serial device t	o which the GPRS phone is connected:
# /dev/ttySO for	serial port (COM1 in Windows),
# /dev/ircommO fo	or IrDA,
# /dev/ttyUBO for	Bluetooth (Bluez with rfcomm running) and
# /dev/ttyUSB0 #f	ior USB
dev/ttyS34 #	serial port one Connect the GPRS to the COM4
#/dev/ttyS0 #	serial port one
#/dev/ttyS1 #	f serial port two
#/dev/ircommO #	IrDA serial port one
#/dev/rfcomm0 #	Bluetooth serial port one
#/dev/ttyUSB0 #	USB serial device, for example Orange SPV

➢ I-8212₩/ I-8212₩-3GWA



▶ I-8213₩/I-8213₩-3GWA



(3) Type " :wq " to save and quit the script.

The default GPRS baudrate is "**115200**" in the LinPAC, so if users finish the setting of gprs modem and connect the gprs modem to the COM port of LinPAC-8000, just type in "**pppd call wavecom**" and then LinPAC-8000 will be connected to the internet automatically. Remember that the network interface card of LinPAC should stop first, just type in "**ifdown eth0**" to stop it. If users type in "**ifconfig**" will see the "**ppp0**" option.

Chapter 7 Quick test GPS (I-8213W /I-8213W-3GWA only)

7.1 XP-8000 (Windows Embedded Standard 2009)

1. Copy the tested software (Send232.exe) to your XP-8000 from the CD Path: CD:\gprs_gsm_modem\I-8212W_I-8213W\Software\XP-8000\GPSTest

2. Execute the tested software and select your port number of on your XP-8000, then you will get GPS data.

Note: The default setting of GPS module is as follows.

Parameters	Default value
Baud rate	9600 bps
Parity	None
Date bit	8
Stop bit	1

🏪 Send232_Binary v1.4.8 (ICPDAS)		
COM Port Baud Line Control Com7 9600 1,8,1	Connect State : Opposite Breaking Close COM	
Flow Control : 💿 None 🔘 HW 🕥 SW	Auto Connect Detection	
CTS : True DSR : True DCD : False		
End char of String	Auto-Send 7188	
None C LF_CR(0x0a 0x0d)	Period : 500 Setting Set_Net	
CR(0x0d) CR_LF(0x0d 0x0a)		
O LF(0x0a) O Def 1A (HEX)	Send Stop END	
Send232_SEND (ASCII Mode)	- Send232_RECV (Auto-Recv)(ASCII Mode)	
ASCII Clear Text	Manual Recv Clear Input Buffer	
Binary	Auto Recv Clear Text Binary	
Send_Len: 0 0	Recy Len: 406 406	
ICPDAS	\$GPGSA,A,1,*1E \$GPGSV,1,1,00*79 \$GPRMC,000314.037,V,,0.00,0.00,06 0180,,,N*40 \$GPVTG,0.00,T,,M,0.00,N,0.00,K,N*32	
	E Chambels E Enland	

7.2 WinPAC-8000 (WinCE 5.0 Based)

1. Copy the tested software (SendToCOM.exe) to your WinPAC-8000 from the CD Path: CD:\gprs_gsm_modem\I-8212W_I-8213W\Software\WP-8000\GPSTest

2. Execute the tested software and select your port number of on your WinPAC-8000, then you will get GPS data.

Note: The default setting of GPS module is as follows.

Parameters	Default value
Baud rate	9600 bps
Parity	None
Date bit	8
Stop bit	1

ICPDAS Send to COM V1.0.3 2010/3	3/8
Connection Status COM Port Baudrate Data Bit Parity COM7 9600 8 0-None Parit	y v 1 v Close
End string with None LF_CR CR O Commands Responses Current Packet Size (bytes) 0 Current Packet Size (the second	CR_LF LF string +CRC O Binary String Send Polling Auto send Internal (ms) 500 Start Stop 2436 Start Stop Set 21 Start Time Start Time Stop Time Stop Time Stop Time Stop Time Stop Time
	\$GPGGA,000339.037,,,,,0,0,,,M,,M,,*45 \$GPGLL,,,,,000339.037,V,N*77 \$GPGSA,A,1,,,,,,*1E \$GPGSV,1,1,00*79 \$GPRMC,000339.037,V,,,,0.00,0.00,060180,,,N*4F \$GPVTG,0.00,T,,M,0.00,N,0.00,K,N*32 \$GPGGA,000340.037,V,N*79 \$GPGSA,A,1,,,,,000340.037,V,N*79 \$GPGS5A,A,1,,,,,000340.037,V,N*79 \$GPGS5A,A,1,,,,,000340.037,V,N*79 \$GPGS5A,A,1,,,,,000340.037,V,N*79 \$GPGS5A,A,1,,,,,000340.037,V,N*79 \$GPGS5A,A,1,,,,,000340.037,V,N*41 \$GPGS5A,A,1,,,,000,N,0.00,K,N*32 \$GPGGA,000341.037,,,,00,,,M,,M,,*4A

7.3 iPAC-8000 (miniOS7 Based)

1. Download the tested software (GPS.exe) to your iPAC-8000 from the CD Path: CD:\ gprs_gsm_modem\I-8212W_I-8213W\Software\iPAC-8000\GPSTest

2. Execute the tested software and type your port number of on your iPAC-8000, then you will get GPS data.

Note: The default setting of GPS module is as follows.

Parameters	Default value
Baud rate	9600 bps
Parity	None
Date bit	8
Stop bit	1

C837_U2_UDP>run	
8000a.Lib vesion 2.0C, Date:Jan 14 2011	

GPS Demo for 1-8213W	
i i	
topood cocode coc and press lenter. 5	
\$GPGGH,0000040.035,,,,0,0,,,Π,,Π,,*5Υ	
\$GPGLL,,,,,000040.036,V,N*78	
ραΓάδΗ,Η,Ι,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
201039,1,1,00×77 CODMC 000040 02(11 0 00 0 00 000400 N×42	
201 M0,0000010.030,0,,,,0.00,0.00,000100,,,0~13	
\$CPCC0 000041 036 0 0 M M ¥49	
\$CPCLL 000041 036 N#70	
\$GPGSU_1_1_00*79	
5GPRMC.000041.036.U0.00.0.00.060180N*42	
\$GPUTG.0.00.TM.0.00.N.0.00.K.N*32	
\$GPGGA,000042.036,,,,,0,0,,,M,,M,,*4B	
\$GPGLL,,,,,000042.036,V,N*79	
\$GPGSA,A,1,,,,,,,,,,*1E	
\$GPGSV,1,1,00*79	

7.4 LinPAC-8000 (Linux kernel 2.6 based)

Type "cat /dev/ttySn". The ttySn represents the GPS port number of the I-8213W

Note: The default setting of GPS module is as follows.

Parameters	Default value	
Baud rate	9600 bps	
Parity	None	
Date bit	8	
Stop bit	1	

cat /dev/ttyS3
%GPGGA,000037.036,,,,,0,0,,,M,,M,,*49

\$GPGLL,,,,,000037.036,V,N*7B

\$GPGSA,A,1,,,,,,,,,,,*1E

\$GPGSV,1,1,00*79

\$GPRMC,000037.036,V,,,,0.00,0.00,060180,,,N*43

\$GPVTG,0.00,T,,M,0.00,N,0.00,K,N*32

\$GPGGA,000038.036,,,,0,0,,,M,,M,,*46

\$GPGLL,,,,000038.036,V,N*74

\$GPGSA,A,1,,,,,,,,,*1E

\$GPGSV,1,1,00*79

\$GPRMC,000038.036,V,,,,0.00,0.00,060180,,,N*4C

Revised Note:

Version	Ву	Date	Description
1.00	Yide	2011/03/10	Release
1.01	Malo	2011/08/15	Add 3G module
1.02	Malo	2011/12/28	Modify title name