

iTegno 38XX GPRS Modem

Diagnostic Tool User Guide

(For hardware version P3 and later)

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Document History

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1.0	8 Oct 2008	Initial Release	P3



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1 INTRODUCTION

iTegno 38XX GPRS Modem Diagnostic Tool Software is designed to test the requirements of iTegno 38XX GPRS modem. There are various tests in this tool, including Communication test, SIM Detection, Registration, Signal Strength, CSD Connection, Exchange Data test and GPRS Test. The Diagnostic Tool software will enable iTegno 38XX modem users to identify the problems and generate a log analysis.

This manual provides an overview of the operation of iTegno 38XX GPRS Modem Diagnostic Tool Software.

1.1 Abbreviations

The following abbreviations are used in this document.

Abbreviation	Description
CSD	Circuit Switched Dataline
GPRS	General Packet Radio Services
GSM	Global System for Mobile Communications
SMS	Short Message Service
DCD	Data Carrier Detect
DTR	Data Terminal Ready
DUT	Device Under Test (The modem to be tested)
SIM	Subscriber Identity Module
PC	Personal Computer
APN	Access Point Name
OS	Operating System



2 INSTALLATION

This section provides a step-by-step installation guide for setting up the Diagnostic Tool Software.

Step 1

Run the setup file (setup.exe). The Diagnostic Tool setup wizard will appear. Click **Next** to continue.



Step 2

Select an installation folder and click **Next** to continue. (It is recommended to use the default folder name).

Setup - Medem Diagnostic Tool 📰 💽 🗖 🔯
Select Destination Location Where should if egre Modern Disgnanic Tool be installed?
Eatup will install iT agric Modern Diagnostic Tool into the tallowing lobbs. To continue, click Next 11 you would like to select a different fulder, click Bowen.
National Theory and the second state
a colorador os concertos
At least E.0 MB of hee disk space is required
Cancel

Step 3

Rename the shortcut folder if needed and click **Next** to continue. (It is suggested to use the default folder name).

🖗 Setup - Hegno Modern Diagnostic Tool	- 23
Select Start Menu Folder Where should Setup place the program's shretcals?	
To commun. click Next. If you recall the to sales a different today click Boarse	
Mitrodulociderentidati	j į
Don't create a Stat Menu loider	
Clinck Nexts Car	cel 1



Check *Create a desktop icon* and/or *Create a Quick Launch icon* if needed. Click **Next** to proceed.



Step 5

Select Install to install the Diagnostic Tool software.

eady to Install Setup is now ready to begin installing	iTegno Modern Diagnostic T	ool on your
computer.		C
Click Install to continue with the instal change any settings.	lation, or click Back if you we	nt to review or
Destination location: C:VProgram Files/JT egno Modern	Diagnostic Tool	<u>^</u>
Start Menu folder:		
iTegno Modem Diagnostic Tool		
		~
		(2)

Step 6

After you have finished installing the software, click **Finish**. The Diagnostic Tool Software is now ready for use.





3 TEST SCOPES

The Diagnostic Tool Software can perform the following tests:

Test	Purpose
Check Modem	To verify a valid iWOW Modem is being connected.
SIM Detection	To test SIM interface to the modem. (Note, a valid SIM card must be used)
Registration	To test modem registration to the GSM network.
Signal Strength	To test modem signal reception.
Short Message	To test modem sending and receiving of SMS. (1 SMS is being sent)
CSD	To test CSD connection. (A cooperating modem is needed)
Data Transfer	To test data transfer in CSD.
GPRS	To test GPRS connection and to ping to a server.
Modem Settings	To extract additional modem settings.



3.1 Error Codes

The following table list the possible errors reported by the Diagnostic Tool Software:

Error Code	Description
0010	Failure to communicate with the modem
0020	SIM Card error
0031	Failure to register to the network
0032	Weak signal
0041	Failure to send SMS
0042	Failure to receive SMS
0051	DCD≠0
0052	Failed to receive incoming CSD call
0053	Failed to answer CSD
0054	DCD≠1
0055	Failure to send/receive data in CSD
0056	DCD≠0 after call is disconnected
0057	Failure to detect DTR
0061	Failure to dial to GPRS
0062	Failure to ping to both user-defined address and www.itegno.com
0063	Failure to ping to user defined address only (pinging <u>www.itegno.com</u> is successful)
0070	Unable to save settings



4 TESTING THE MODEM

🐼 iTegno Modem Diagnostic Tool		
File Tools Help		
Step 1: DUT (Device Under Test) Settings		
COM No.: COM3 C SIM No.:	Check Modem:	····
	SIM Detection:	
Step 2: Optional Test settings	Registration:	
CSD Test	Signal Strength:	
COM No.: COM3 🔽	Short Message:	
GPR5 Pina Test	CSD:	· · · · · ·
APN:	Data transfer:	
User Name: Password:	GPRS:	
Ping Address:	Modem Settings:	
	IMEI No.:	
Step 3: Test	FW.Ver:	
Start Test View Log Files	Operator:	
Current Status: None		signal

Figure: iTegno 38XX Modem Diagnostic Tool Software Main Screen

To test your modem with the Diagnostic Tool Software:

Step 1

Connect the DUT (the modem which is to be tested) to the computer.

Step 2

Start up the Diagnostic Tool software.



Apply the required settings in the Diagnostic Tool Software Main Screen (as shown above) - *Step 1: Device Under Test (DUT) Settings*.

Step 1: DUT (Device Under Test) Settings
COM No.:	COM3 C SIM No.:

Select the COM port that the DUT is connected to. To refresh COM port list, click Enter the SIM card number used in the DUT.

Step 4

Select optional tests in *Step 2: Optional Test Settings*. You can enable optional tests in this group. The available options include:

- CSD test
- GPRS Ping test

itep 2: Optional Test settings
CSD Test
COM No.: COM3 💌
GPRS Ping Test
APN:
User Name: Password:
Ping Address: www.itegno.com

CSD Test

For CSD test, a cooperating modem is needed. Connect the cooperating modem into another COM port of the PC and enter the COM Port into "COM No.".

GPRS Ping Test

For GPRS ping test, fill up the GPRS APN parameters and a ping target.

A GPRS dial-up connection has to be created before running the test. Please refer to **Section 7: Preparing for GPRS Test Option** for more information on the setup procedure.

(**Note:** You will only need to do this once in your computer; you may skip this step if it has already been created)



Start the test in Step 3: Test.

Step 3: Test		
	Start Test	View Log File

To start the test, click on the **Start Test** button. The test progress will be displayed in the right panel (as shown below):

Check Modem:	
SIM Detection:	
Registration:	· · · · · · · · · · · · · · · · · · ·
Signal Strength:	
Short Message:	
CSD:	· · · · · · · · · · · · · · · · · · ·
Data transfer:	
GPRS:	
Modem Settings:	
IMEI No.:	
FW.Ver:	
Operator:	

The final test result and error codes, if any, will be displayed on the status bar.

Current Status: None ...



A test log file will be created and the test result is displayed in a pop up panel (as shown below) after the test.

Zifhrogram FileslyWOW Deagnostic Tool[Log]tst[Log_20080929114354.btt 2008-09-29 11:43:52 Device Information PW Text 3557700003031810 PW.Ver: 88, 02, 00, 3004, DEP0003 Operator: 556741-3634 Signal: Signal: Signal: Signal: Signal: Test: Result Check Moden:: Pass Signal:	Test Result
2008-09-29 11:43:52 Device Information PMUTNA:: 355700003031810 PMUTNA:: 355700003031810 PMUTNA:: 352741-363M Signal: Signal: Signal: Signal: Signal: Signal: Check.Moden:: Pass Signal Strength:	5///program Files//WOW Diagnostic Tool/LogTst/Log_20080929114354.txt
Device Information PREI No:: 3957000000018180 PREI No:: 3957000000018180 Ceperator: 597911-363M Sanati: SSM No:: 94751802 Aff: sunuef Desvect: Test: Result Check Moden:: Pass SSM Detector:: Pass SS	2008-09-29 11:43:52
Device Information PMET Not: 19570000001110 PMET Not: 1957000000 Operator: SGP-M1-DGBM Sgnal: Sgm Not: 94751002 Affic sunsurf User Name: Password: Test Result Test Result Check Modent: Pass SSM Dotection: Pass SSM Dote	
MET No.: 355700000001010 PW Ver. AD 02_00_3004_DEP0000 Operator: 56P-M1-3GSM Signal: SIM No.: 91751002 APR: sunuer: Password: Test Result Check Moden: Pass Sim Office Signal Strength: Pass Signal	Device Information
PALINE: 30070001100 Ciperator: 500741-362M Signal: SMINo: 19751002 ARR: sname: Password: Test Result Check Moden: Pass SMI Detector: Pass Signal Strength: Pass Signal Stren	
Coperator: SGP-41L-SGSM Sgnal: Sgnal: Test: Result Test: Result Check Moden:: Pass SSM Detection: Pass SM Detection: Pas	FW.Ver: All 02:00 30N DEP003
Sgnal: Sgn No: 197518022 APR: sunsuf User Name: Password: Test Result Check Modem: Pass SSM Offection: Pass Sgnal Strength:	Operator: SGP-M1-3GSM
SPI Nor: 94751802 APR: sunsuf Dear Name: Password: Test: Result Check Moden: Pass SPI Detectors: Pass Spin Strength: Pass Spin	Signal:
Affe sinsurf User Name: Password: Test Result Test Result Check Modem: Pass Stort Message: Pass Short Message: Fal Cash Nat tested Data transfer: Not tested GRRS: Fal AT Commands Log AT OK AT OK AT WOW	504 No.: 94751002
User Neme: Password: Test Result Check Moden: Pass SM Detectors: Pass Sgnd Strength: Pass	APN: sinsuf
Test Result Test Result Test Result Test Result Check Modem: Pass Strott Message: Pail Short Message: Pail Short Message: Pail CSD: Not tested Data transfer: Not tested GRRS: Fail AT Commands Log AT OK AT OK WOW	User Name: December 1
Test Result Check Nodem: Pass Check Nodem: Pass SMD Detector: Pass Registration: Pass Short Nessage: Fal CSN Not tested Data transfer: Not tested GRRS: Fal AT Commands Log AT CK AT CK AT CK AT CK AT CK AT CK	/ 200W0/2:
Test Result Check Moden: Pass SM Detector: Pass Sand Strength: Pass CSD: Not tested GRRS: Fal AT AT Cot AT Cot AT WOW	
Check Modem: Pass Check Modem: Pass Strott Message: Fail Spind Strength: Pass Short Message: Fail CSD: Not tested Data transfer: Not tested GRRS: Fail AT Commands Log AT OK AT+CGMD;+CGMM;+CGMR;+CGSN WOW	Yest David
Check Modem: Pass SM Detector: Pass Registration: Pass Short Message: Fal CSN Not tested Data transfer: Not tested GRR5: Fal AT Commands.log AT CK AT-CGMD;+CGMM;+CGMR;+CGSN WOW	TERK FRESLER
SM Detection: Pass Signal Strength: Pass CSD: Not tested GRSS: Fail AT AT AT Cot AT Cot AT WOW	Check Modem: Pass
Ingestration: Pais Sport Kresses: Fail CSD: Not tested Data transfer: Not tested GRRS: Fail AT Commands Log AT OK AT+CGMD;+CGMM;+CGMR;+CGSN WOW	SIM Detection: Pass
Short Netsage: Fail CSD: Not tested CSD: Not tested GRS: Fail AT Commands Log AT OK AT CK AT-CGMD;+CGMM;+CGMR;+CGSN WOW	Registration: Pass Sanad Strength: Bass
CSD: Not Tested CSD: Not Tested GRS: Fal AT Commands Log AT OK AT+CGMD;+CGMR;+CGMR;+CGSN WOW	Short Message: Fal
Data transfer: Not tested GRS: Fail AT Commands Log AT OK AT+CGMD;+CGMD;+CGMR;+CGSN WOW	CSD: Not tested
AT Commands Log AT OK AT AT AT WOW	Data transfer: Not tested
AT Commands Log AT OK AT+CGM0;+CGM0;+CGM1;+CGSN WOW	GPRS: Pal
AT Commands Log AT OK AT OK AT+CGMD;+CGMD;+CGMD;+CGSN WOW	
AT COMMANDS LOG AT OK AT HI-CGMD;+CGMD;+CGMD;+CGDN WOW	
AT OK AT+CGM3;+CGM3;+CGM3;+CGM WOW	Al Commanos Log
ok At+c@M;+c@M;+c@R;+c@N WOW ₩	AT
AT+CGMI;+CGMI;+CGMI;+CGMI WOW	ox
wow	AT+CGMD;+CGMM;+CGMR;+CGSN
	wow
Write e-mail to IWOW Technical Support CK	Write e-mail to WOW Technical Support OK



5 LOG FILES

To view previous log files, select **File** > **View Log File** from the menu. A **Test Logs** panel will be displayed. Select the desired log file and click **Open** to view the test log.



Log files are named in the following format:

Log_YYYYMMDDhhssmm.txt

where:

уууу	=	4 digit year
mm	=	2 digit month
dd	=	2 digit day
hh	=	2 digit hours
mm	=	2 digit minutes
SS	=	2 digit seconds

The Log Files are filed in the Diagnostic Tool Program Folder> \ application \ LogTst folder.



6 APPLYING USER SETTINGS INTO THE MODEM

User-defined settings can be configured onto the modem using the Diagnostic Tool Software.

To open the **User-defined Settings** Panel, select **Tools** > **User-defined settings** from the main menu. The User-defined Settings panel will be displayed as shown below.



Edit your desired settings (AT Commands) into the left panel. Click **Save** to save the modifications.

To configure the modem with the displayed User-defined settings:

- 1. Connect Modem to the PC.
- 2. Click on <Configure Modem> to start configuring your settings into the modem.

Note:

Please ensure that the COM port settings are set correctly in the main screen.



7 PREPARING FOR GPRS TEST OPTION

For GPRS test option, a GPRS Connection has to be created in your Windows Operating System before performing the GPRS test in the Diagnostic Tool software. You will only need to create it once and you can reuse the connection for future tests.

Step 1

From the Windows task bar, select **Start > Programs > Control Panel > Phone and modem options**.

Step 2

Select "Modems" tab. Click Add to proceed.

Phone and Modem Options	? 🛛
Dialing Rules Modems Advanced	
The following moderns are installed:	
Modem	Attached To
Conexant HDA D330 MDC V.92 Modem	COM3
Tegno GPRS Wireless Modem	Not present
Tegno GPRS Wireless Modem #2	Not present
America Connector	Not present
Mobile Connector #2	Not present
Mobile Connector #3	Not present
Nokia 6500 slide USB Modem	Not present
Standard 33600 bps Modem	COM37
Add Rer	nove Properties
ОК	Cancel Apply

Step 3

Please ensure that "Don't detect modem, I will select it from a list" is checked. Click **Next** to continue

Step 4

Select Standard 33600 bps modem and click Next to continue.





Select COM the COM port number that the DUT is connected. In the last screen, click Finish to complete the set up for your serial modem.

Install New Modern Select the port(s) you	east to initial the rocket on.
	Tau fare existent the Malering reader: Standard 33000 bas Modern Cri which posts do you want to establik? Cri which Cri which Coll 32 COM32 COM32
	clack Inc. Carol

Step 6

To ensure that the correct communication parameter has been set-up, click on its **Properties**. Ensure the parameters are correct as below:

- Port Speed/Baud Rate: 115200
- Data Bits: 8
- Parity: None
- Stop Bit: 1
- Flow Control: Hardware

Step 7

You have created a Modem Port in your Windows Operating System. The next step is to create a GPRS Dial-up Connection and name it "iwowGPRS".



From the Windows task bar, go to **Control Panel** > **Network Connection** and run the **New Connection Wizard**. A setup wizard will be displayed. Click **Next** to continue.

Step 9

Select Connect to the Internet and click Next to continue.

5	Welcome to the New Connection Wizard
- U	The water teleping to a
	 Connect to the Internet
	 Connect to a private network, such as your workplace network.
	 Set up a hone or anali office network.
	To connect to a windows nativolity, view attended cathronical to service
	To continue, click Neet.

Step 10

Select **Set up my connection manually**. Click **Next** to continue.

New Connection Wizard
Getting Roady The wated is precamp to set up your internet connection.
How do you want to convect to the Internet?
Oncose from a list of Internet service providers (ISPs)
Set up my connection manually
For a dark a convection, you will need your account name, password, and a phore number for your ISP. For a broadband account, you won't need a phore number.
O Use the CD I got from an ISP
(Back Next) Cancel

Step 11

Select **Connect using a dial-up modem**. Click **Next** to continue.





Enter ***99***1#** for the phone number. This is a fixed GPRS connection dialling number for the module. Click **Next** to continue.

New Connection Wizard.	
Phone Number to Dail What is your ISP's phone number?	I)
Type the phone number below. Phone number: Type=Type	
This right need to include a "1" or the area code, or both. If you are not sue you need the educ numbers, did the phone number on you telephone. If you hear a modern sound, the number dided is correct.	
(Bast Net)	and I

Step 13

Enter User name and Password if applicable. Uncheck on all options and click **Next** to continue.

itemet Account Information	n 🥂
You will need an account na	ne and password to sign in to your internet account.
Type an ISP account mane is safe place. (If you have forge	and password, then write down this information and slove it in a stem an existing account name or password, contact your (S^μ)
Unit name.	
Passod	
Confern password	
Use Pis account name intercomputer	and password when aryone parvects to the Internet hum
Make this the default into	end correction

Step 14

Click Finish to complete the wizard.

New Connection Wizard	
S	Completing the New Connection Wizard
- e	You have successfully completed the steps needed to create the following connection:
	GPRS Modem • Make this the default connection • Snaw which 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 shortout to this connection to my desktop
	To create the connection and close this wizard, click Finish.
	< Back Finish Cancel

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8 TROUBLESHOOTING

This chapter provides some troubleshooting guidelines on Non-True defects based on the Error Codes reported by the Diagnostic Tool Software.

Please perform the necessary troubleshooting activities to isolate all possible Non-True defects before contacting iWOW Technical Support Engineer for further technical assistance.

8.1 Failure to Communicate with the Modem (Error Code: 0010)

Possible Causes	Troubleshooting
Invalid iWOW Product	Diagnostic Tool Software will only work with iWOW products. Please
	ensure that iWOW modem is used for the test.
Modem not detected	The modem is not to be detected by the Diagnostic Tool software
	Ensure that the USB cable/ Serial cable/ RJ-45 adapter is not faulty
	 Ensure that the modem is powered up properly
	• Ensure that the modem is connected to the COM port specified in
	the Diagnostic Tool software

8.2 SIM Card Error (Error Code: 0020)

Possible Causes	Troubleshooting
SIM PIN/ PUK locked	• Test the SIM card with a mobile phone. If you are prompted to enter
	a SIM PIN or PUK, your SIM card is locked. Unlock the SIM with
	your mobile phone. Insert the SIM card back to the modem and re-
	test the modem. Contact your network service provider for
	assistance if you have lost your SIM PIN or PUK code.
Faulty SIM card	Ensure that the SIM card is properly inserted into the modem
	• Test the SIM card with a mobile phone; if the phone cannot register
	to the network or cannot detect the SIM card, replace it with a valid
	SIM card to test the modem

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8.3 Failure to Register to the Network (Error Code: 0031)

Possible Causes	Troubleshooting
Invalid SIM card	• Test the SIM card with a mobile phone. If the phone cannot register
	to the network, replace it with another valid SIM card to test the modem.

8.4 Weak Signal (Error Code: 0032)

Troubleshooting
• If the modem needs an external antenna, test and verify that the
external antenna is functional
• Use another antenna to test the modem or test the external antenna
with another modem
• Ensure that the external antenna is properly plugged into the modem
• The location where you conduct the modem testing may be having a
very weak signal reception. Try to test the modem in another
location, or place the external antenna, if any, in another location
with a better reception

8.5 Failure to Send/Received Short Message (Error Codes: 0041 and 0042)

Possible Causes	Troubleshooting
Invalid service	Insert the SIM card into a mobile phone. Try sending and receiving
	SMS with the mobile phone. If the sending/ receipt of SMS in the
	mobile phone is unsuccessful, replace the SIM card or contact your
	network operator to enable your SMS service



8.6 DCD≠0 (Error Code: 0051)

Possible Causes	Troubleshooting
Faulty serial cable	 Replace the external serial cable and test the modem again

8.7 Unable to Receive Incoming Data Call (Error Code: 0052)

Possible Causes	Troubleshooting
Wrong SIM number	• Ensure that the SIM card number entered in the Diagnostic Tool
	software is correct
Faulty SIM card	• Contact your network operator and confirm that both SIM cards in
	the modem and the cooperating device are enabled with data call
	service
Faulty cooperating device	Replace the cooperating device

8.8 DCD≠1 (Error Code: 0054)

Possible Causes	Troubleshooting
Faulty serial cable	 Replace the external serial cable and test the modem again



8.9 Failure in Dialling to GPRS Network (Error Code: 0061)

Possible Causes	Troubleshooting
Invalid connection profile	• The connection setup must be manually created before testing the
in Windows OS	GPRS function.
Invalid APN, user name	Ensure that the given APN, user name and password are correct
and password	 Contact your network operator for more details

8.10 Failure to Ping to User-Defined Address Only (Error Code: 0063)

This is not considered a True Modem defect as pinging to <u>www.iTegno.com</u> is successful.

Please ensure that the given Ping address (in the Diagnostic Tool Software) is a valid server with the Ping protocol enabled.



9 SUPPORT/ CONTACT US

For online support (FAQs and drivers download), please visit www.iTegno.com.

For technical support, please contact our distributors/resellers or email us at <u>developers@iTegno.com</u>.

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