

CGW-I Cellular Gateway BRI-GSM Interface

Installation and Operation Manual

VERSION 2.04

JUNE, 2005

PROPRIETARY

CGWI-M002ID



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1. Overview

Your new CGW-I cellular gateway connects your PBX (Private Branch eXchange) directly to a GSM cellular network, using the ISDN BRI interface. By routing your outgoing calls made to cellular numbers through your new device, you bypass the landline carrier and eliminate excessive interconnection fees, thus cutting your telephone costs significantly.

The CGW-I offers 2 voice connections and your choice of integrated dual-band GSM modules (900/1800, 850/1900 MHz), enabling you to work with 2 different GSM network operators simultaneously.

Also included with your new device is the CGW-I Manager, the BRI-GSM Utility Program, needed to configure your device with a rich variety of features that you will learn about as you read through this manual.

About this Manual

This manual describes the installation, setup and operation of your new Cellular GateWay for ISDN (BRI interface), which we will now simply refer to as the *CGW-I* throughout this manual. It is intended for System Installers and Administrators and should be read before the installation, setup and programming of your device.

Updates In This Version

The following table provides a brief overview of fields that have most recently been added, moved or removed.

Field	Screen	Page
Cellular Daily Restart	Added to the System Control screen.	36
Remaining Prepaid SIM Time	Added to the Statistics screen.	39
Reset Parameters	Added to the System Operation screen.	32
SIM Operation Time	Replaced by Prepaid Time in the Prepaid Setting screen (Removed from Statistics screen).	34
SIM Operation Time Alarm	Functionality updated.	42
SIM Setup	Moved to the Prepaid Setting screen.	34
Time Unit	Moved to the Prepaid Setting screen.	34

Main Features

The following table provides a brief overview of the variety of powerful features available in your new CGW-I.

Feature	Functionality
Incoming and Outgoing Call Features	
Intelligent Routing	Return up to 1,500 mobile calls directly to the calling DDI (Direct Dial-In). CGW-I stores the link between the dialing extension and the dialed cellular number. When a missed mobile call is returned, CGW-I recognizes the Caller ID and routes the caller to the dialer's extension.
MSN Routing	Route incoming cellular calls to default Multi-Subscriber Number (MSN), such as a specific extension, Automated Attendant or Voice Mail system.
Call Barring	Dedicate your SIM to handle only incoming calls, outgoing calls, or both.
Call Diversion	Automatically reroute incoming calls to an alternate channel when SIM is busy.
Toll Restrictions	Define which cellular operator prefixes to allow the CGW-I to call and which ones not to allow.
Redirect Call	Override Toll Restrictions and setup a cross-network connection.
Call Duration	Limit the length of calls to protect you from connections that are accidentally left open.
Disable Channel	Limit calls to channels that have Prepaid Time SIM time.
System Management & Monitoring	
Full Device Control	Configure system parameters and view system status levels directly from your PC with included user-friendly Windows-based utility program.
Alarms	Set thresholds to trigger selected SMS and Email alarms.
Statistics	View Reception Level and each SIM card's accumulated traffic.
CDR	Call Detail Recording log for up to 2,500 records.
Balance Call Distribution	Evenly distribute call traffic sent to each SIM.
Configurable Controls & Maintenance	
CLIP / CLIR	Display or hide SIM card numbers using Calling Line Identification Presentation/Restriction setting.
SIM PIN Functionality	Protect each SIM within the CGW-I from unauthorized use if removed.
Network Lock	Configure your CGW-I to work permanently with only a specific operator.
Roaming	Allow calls to automatically connect to the strongest available signal or restrict them to a specific network operator.

Feature	Functionality
Dialing Mode Support	Overlap or En Block.
End of Dialing Digit	Reduce the time required to connect a dialed number.
Gain Control	Adjust volume levels for both incoming and outgoing calls on each channel.
2 Voice Channels	Each with Integrated GSM Cellular Module
Built-in LCD	Verify Signal Strength, Operational Status and Cellular Operator Name to simplify maintenance.
Indicator LEDs	LAN Status (Line and Active), Module Status (2)

Additional system and hardware specifications can be found in Appendix A.

2. Setting Up Your CGW-I

This section lists the full contents of what you have received with your new CGW-I device, describes how it looks and explains how to physically install it and verify that it is working properly. Subsequent chapters will explain how to configure your device using the CGW-I Manager software.

Package Contents

The following table describes the contents of your device package.

Note:

Should the package be damaged or should items from the packing list be missing, contact your distributor directly.

Table 1: Contents List

No.	Item	Qty
1	CGW-I device	1
2	Installation CD with CGW-I Manager Utility Program software and this Installation and Operation Manual in PDF format	1
3	Power Supply (Input: 110VAC, 60Hz or 220VAC, 50Hz) (Output 9VDC, 13.5W)	1
4	Antenna (with cable)	2
5	RS-232 cable (RJ-11 – D-Type 9 pin female)	1
6	ISDN Cable (RJ-45 - RJ-45)	2
7	Template for wall mounting	1
8	Screws and plugs necessary for wall mounting	2

CGW-I Physical Description

Your device is housed in secure metal box, of which the height is 215mm, depth 125mm and width 42mm.



Figure 1: Front View of the CGW-I Box



Figure 2: Bottom View of the CGW-I Box

Pre-Installation

Your CGW-I device contains a GSM engine. It therefore needs a SIM card from the local GSM network provider. Its registration to the GSM operator is similar to the registration of a mobile GSM phone.

Note:

Before installing the SIM card, we recommend disabling all Call Forwarding modes (in the events of busy, absence, unavailability, etc.) and Call Waiting from the GSM operator.

The PIN code requests on the SIM must be disabled to complete the initial installation. You can disable the SIM with any GSM mobile phone.

If you enable the PIN after installation using your mobile phone, you must enter the PIN in the Channel Settings screen (see page 31) before you can make changes to the CGW-I and so that it will work after power up and reset. If you enter an incorrect PIN three times in the Channel Settings screen and are locked out by the SIM, you must enter the PUK code to unlock the SIM.

Note:

To get the PUK code number, you must call your network operator (i.e., local GSM Service Center). Once you enter the PUK code and unlock the SIM, you must still enter the correct PIN to use the CGW-I.

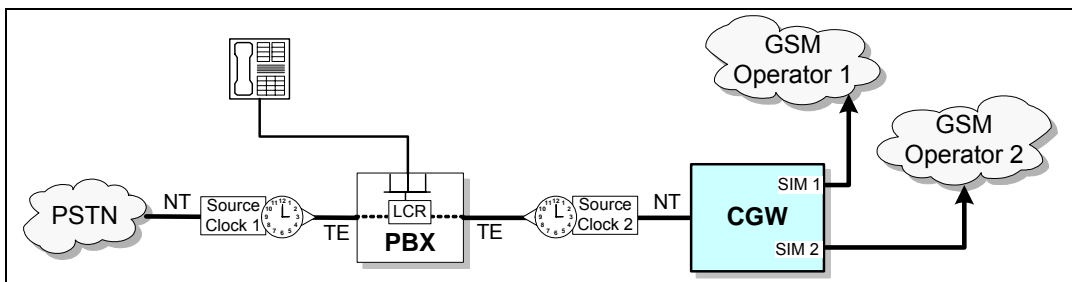
PBX Trunk Configurations

The following configurations describe different PBX Trunk configurations with TE and NT interfaces which you use to connect the PBX to the PSTN and CGW. The TE interface always receives an independent time clock from the NT source. A PBX that receives two different source clocks may experience communication errors, such as the inability to properly disconnect a completed call.

The following diagrams offer different solutions to handle a double source clock situation. In each configuration, a person attached to the PBX dials a number which is first routed to the PBX LCR (Least Cost Route) to verify the calling prefix, then routed to the correct interface:

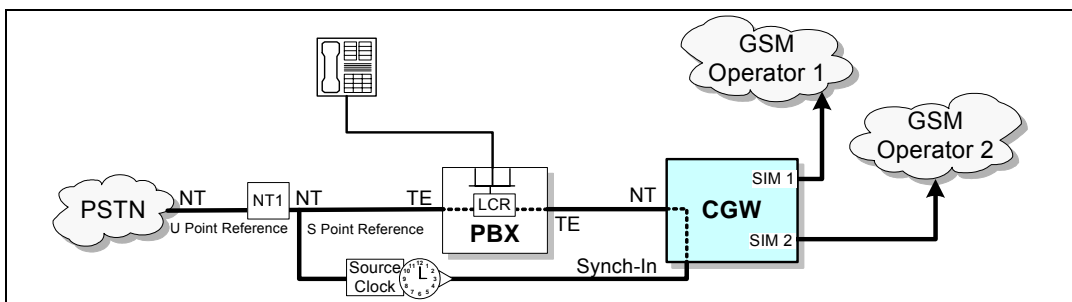
- If the prefix is landline, it creates a connection for the call to leave via the PSTN interface
- If the prefix is cellular, it routes the call to the CGW-I interface and the CGW-I connects the call through a cellular network operator.

Basic PBX / CGW-I without Synchronization



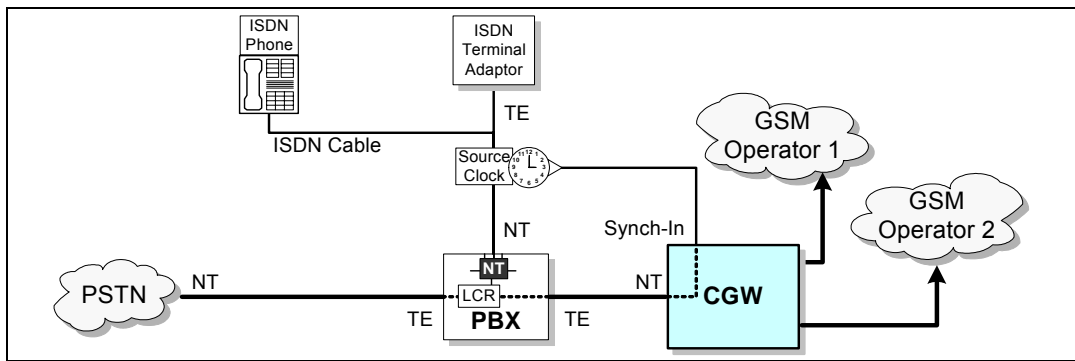
This diagram describes the simplest PBX/CGW-I configuration where the PBX is able to select only the source clock it receives from the PSTN as the main clock and adapt the other NT data information it receives from the CGW.

NT1 / CGW-I Synchronization



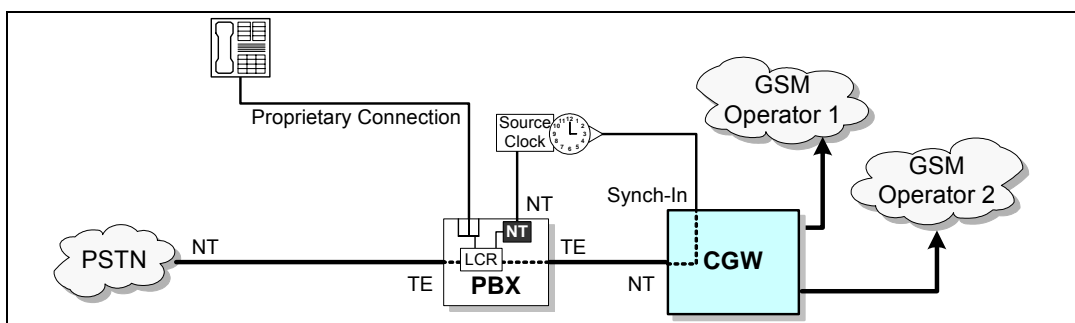
This diagram describes an NT1/CGW-I configuration option which can be used when the PBX requires a single source clock and an NT1 device connects the PSTN to the PBX. By connecting to the NT interface of the NT1 which sends the source clock to the PBX to the Synch-In interface of the CGW, the CGW-I is able to ensure synchronization of the NT source clock it sends to the PBX by using the source clock that the PSTN sends to the PBX.

ISDN Extension / CGW-I Synchronization



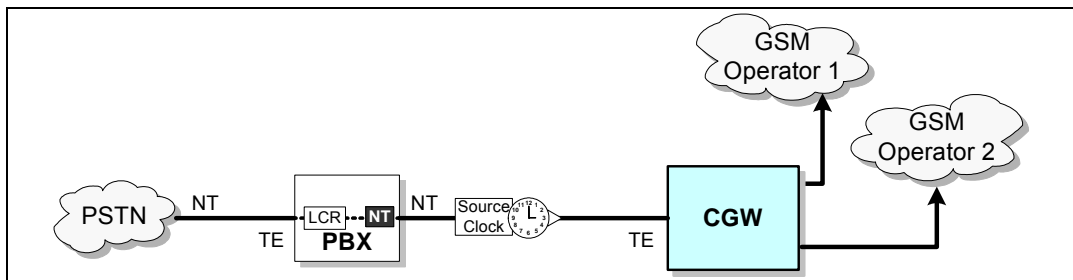
This diagram describes an ISDN Extension/CGW-I configuration option which can be used when the PBX requires a single source clock and the PBX has an NT interface to an extension telephone or terminal adaptor. It is common when the communication between the PSTN and PBX is over a direct PRI connection and there is no NT1 for synchronization. By connecting from the ISDN cable leaving the NT interface of the PBX to the Synch-In interface of the CGW, the CGW-I is able to ensure synchronization of the NT source clock since it sends back the same source clock it received from the PBX. Utilizing the existing cable also lets you avoid using additional ISDN BRI resources (i.e., B1 or B2).

PBX Proprietary Telephone Interface with NT Card for CGW-I Synchronization



This diagram describes a configuration where the PBX uses a proprietary interface connection to the different telephone extensions. Therefore, the PBX requires a special NT card to create an additional NT interface leaving the PBX which will provide the source clock. By connecting the new PBX NT interface to the Synch-In interface of the CGW, the CGW-I is able to ensure synchronization of the source clock it sends back to the PBX.

PBX NT / CGW



This diagram describes a simple PBX NT/CGW-I configuration where the PBX provides a direct NT interface to the TE interface of CGW. Synchronization is automatically ensured in this configuration since the single connection to the CGW-I includes the source clock sent by the PBX.

External Synchronization Feature

If you set up your CGW-I with a configuration that uses the Synch-In interface to ensure synchronization, you must enable the External Synchronization feature in the ISDN Settings window. When this feature is enabled, the CGW-I time clock becomes a “slave” to the external time clock since it takes the clock it receives from the NT source. When this feature is disabled, the CGW-I becomes the “Master” of the time clock it sends to the PBX. You should also disable External Synchronization when the CGW-I connects to a TE interface. To learn how to set enable the External Synchronization feature, see page 26.

Installation

Setting up your CGW-I requires at least one SIM card from the local GSM network provider and a few simple connections between the CGW-I box and the following:

- RS-232 (Setup)
- Antenna
- Communication line
- Synch-In line (Optional)
- ISDN trunk interface of your PBX fxo
- Power supply.

The following sections describe how to make all these connections.

Hanging Up the CGW-I

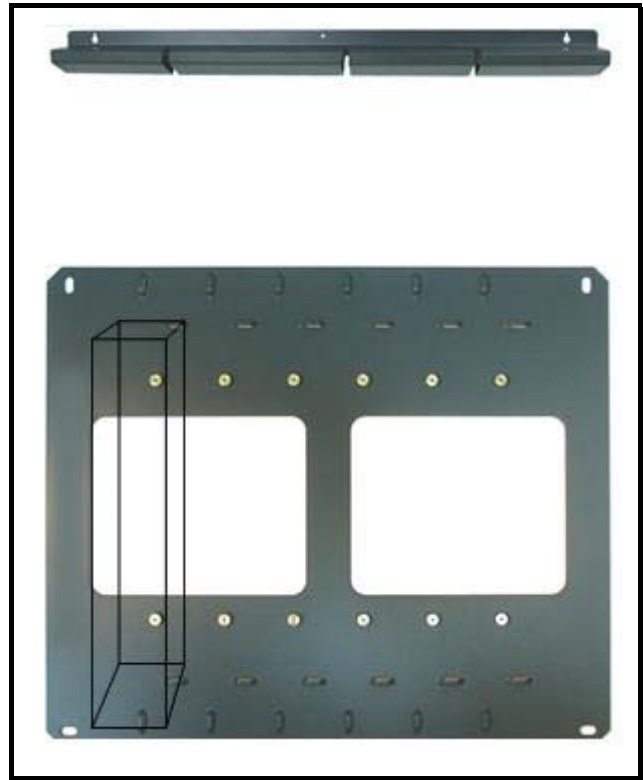
You can hang the CGW-I on the specially designed mounting plate or directly on the wall.

To hang the CGW-I directly on the wall, first drill holes according to the enclosed template, then drill in screws and hang the device from them.

Drill Template



Mounting Plate and Antenna Holder



SIM Card Insertion

CAUTION:

To avoid damage to your CGW-I device, you should disconnect the 9V adapter from the electric power-outlet when inserting or removing the SIM card.



The figure above can be used as guideline for the following steps:

1. Hold the device in your hands with the display pointed to your right and the SIM insertion slot at the bottom of the unit towards you.
2. Use a pointed pen or screwdriver to push the round yellow SIM release lever. The SIM card tray should move out towards you.

3. Take out the tray. You will see that the SIM card will fit in the tray only one way.
4. Carefully place the tray with the SIM card back into the slot and slide it in with the SIM card contacts facing up.

Connecting to the CGW-I

- ① Screw in the antenna cable(s) to the antenna to the Ant. 1 or Ant. 2 connector.

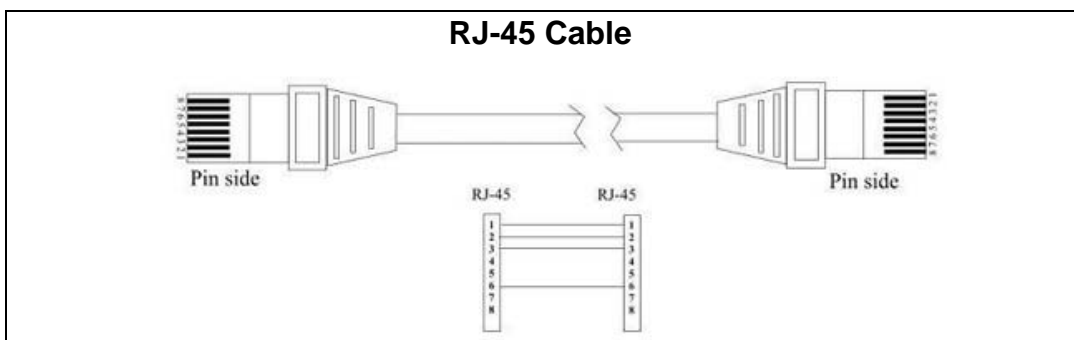
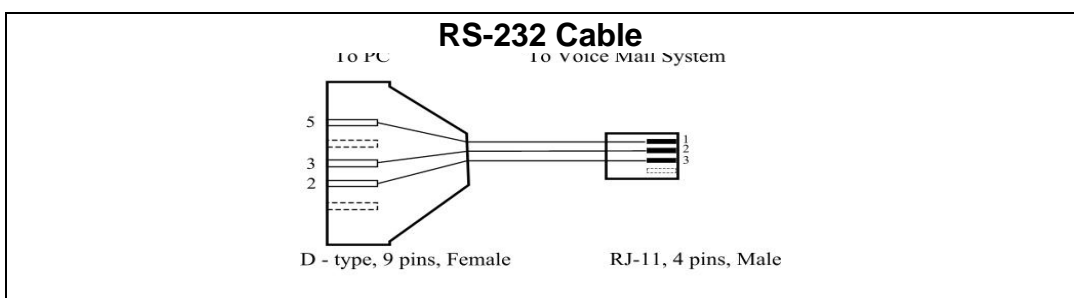


Note:

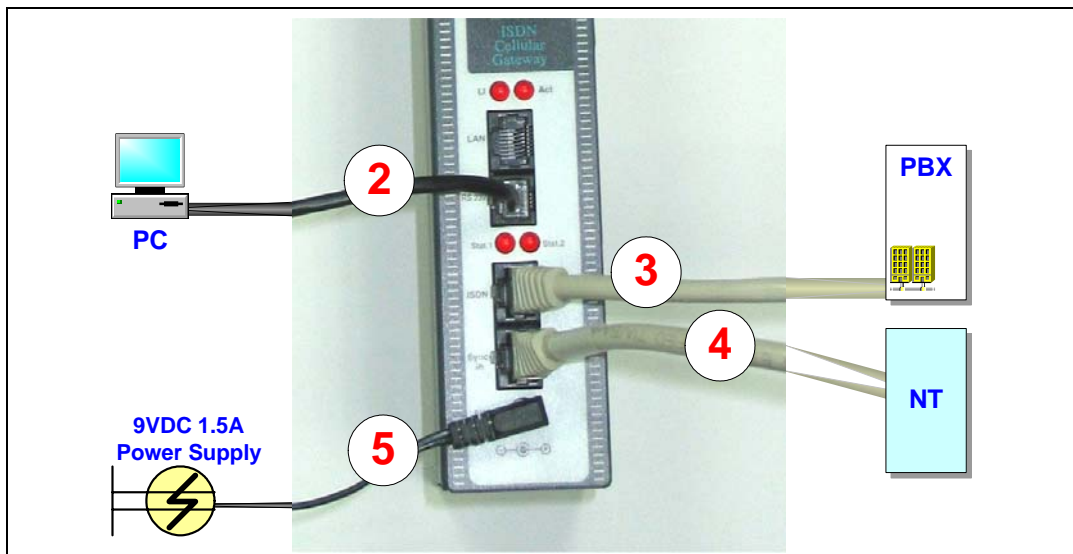
If you are only using one SIM card, make sure that the channel number is the same as the antenna connector you are using (i.e., SIM1 uses Ant.1).

Connecting the Communication Lines

The following diagrams show the different cables that connect to your device.



The following diagram shows how to connect the different cables to your device.



- 2 Connect the RS-232 cable from a PC to the RS-232 interface of the CGW-I.

Note:

Communication with the CGW-I can be done over either the RS-232 interface or LAN connection. Even you plan to communicate with the CGW-I over a LAN, you must first connect the RS-232 cable to define the network parameters and complete the initial setup

- 3 Connect the RJ-45 cable from the PBX to the ISDN interface of the CGW-I.
- 4 If you need to synchronize the CGW-I time clock, connect the RJ-45 cable from the NT interface to the Synch-In interface of the CGW-I.
- 5 Connect the supplied 9VDC 1.5A power converter cable to the CGW-I power supply connector.

If you want to communicate over a LAN, once you have completed steps 1-5 you must remove the RS-232 cable and connect an RJ-45 Cable from your LAN to the LAN interface of the CGW-I.

Turning on Your CGW-I

CAUTION:

To avoid damage to your CGW-I device, the 9V adapter should be disconnected from the electric power-outlet when inserting or removing the SIM card.

After you connect the supplied 9VDC power supply converter cable into the 9VDC port of the CGW-I device plug it into the appropriate power supply. A message should now appear on your CGW-I LCD, indicating that the device is now working. For a description of the different messages, please see LCD Messages on page 15.

You are now ready to configure your new CGW-I device.



LED Indicators

Your device contains 4 LEDs that indicate the status of communications going through the device. The following table describes the LEDs and their purpose.

Name	LED	Status
Li	On	LAN cable is connected to CGW-I
Act	Flashing	Receiving or transmitting call through the LAN
Stat. 1	On	Registering
	Off	Problem
	Fast blinking	During call process or connection
	Slow blinking	Idle
Stat. 2	On	Registering
	Off	Problem
	Fast blinking	During call process or connection
	Slow blinking	Idle

LCD Messages

The following table describes the LCD messages, which can occur during the operation of your device. Also included are the actions that are needed. The purpose of the display is to help the installer and administrator to quickly make your device operational.

Notes:

- A message appears on the row relevant to the specific channel: Row 1 refers to Channel 1 and Row 2 refers to Channel 2. ISDN Errors are relevant to the whole device and both channels.
- The number of the operator can be between 5-7 digits
- The reception level can be from 2-3 digits.

LCD Messages	Description	Action
Version Number	During power on, the version number is displayed until the device begins registration.	
Registration #XX	During initial registration, displays the current step in the process.	
Opr. =XXXXXXXX -XXX	During an idle state, the number of the operator appears together with the reception level. Number is displayed when the Number value is selected in LCD Operator Display (see page 27).	
Operator NoSig	If there is no signal, the name of the operator appears with NoSig. Operator name is displayed when the Name value is selected in LCD Operator Display (see page 27).	Check antenna location. See Reception Level, pg 43.
Opr. =XXXXXXXX NoSig	If there is no signal, the number of the operator appears with NoSig. Operator Number is displayed when the Number value is selected in LCD Operator Display (see page 27).	Check antenna location. See Reception Level, pg 43.
No Name NoSig	If there is no signal and the name of the operator is not available. No Name is displayed when the Name value is selected in LCD Operator Display (see page 27).	Check antenna location. See Reception Level, pg 43.
No Num. NoSig	If there is no signal and the number of the operator is not available. No Number is displayed when the Number value is selected in LCD Operator Display (see page 27).	Check antenna location. See Reception Level, pg 43.
Calling -XXX	When an outgoing call is being made, Calling and the 2-3 digit signal level is displayed.	
Ring At Dst -XXX	When an outgoing call is ringing at the destination number, Ring At Dst and the 2-3 digit signal level are displayed.	

LCD Messages	Description	Action
Ringing –XXX	When an incoming call is ringing, Ringing and the 2-3 digit signal level are displayed.	
Connected -XXX	When a call is connected, Connect and the 2-3 digit signal level are displayed.	
Disconnecting –XXX	When a call is being disconnected, Disconnecting and the 2-3 digit signal level are displayed.	
Busy -XXX	When an outgoing call is dialed and the number is busy, Busy and the 2-3 digit signal level are displayed.	
Drawer Open	The SIM drawer is open.	Close the drawer
ISDN Error No Sync	There is a synchronization error.	Check physical cable from NT source to Synch-In port.
ISDN Error Interface Failure	There is an error with the ISDN interface communication.	Reset the ISDN.
ISDN Error No Link	There is no link to the PBX.	Check physical cable from NT source to the device.
Error: Pin Code	Displayed when you enter the incorrect SIM code in the GUI.	Enter the correct PIN or disable the PIN code.
Error: Puk Code	When an incorrect PIN is entered and the card is locked, you must call the network operator to get the correct PUK code to unlock the code.	Call your network operator to get the PUK code.
Error: No SIM	The SIM card is not inserted.	Insert a GSM SIM card.
Operator Close	The device is performing a Gentle Close on this channel. Name is displayed when the Name value is selected in LCD Operator Display (see page 27).	
Opr. = XXXXXXXX Close	The device is performing a Gentle Close on this channel. Operator Number is displayed when the Number value is selected in LCD Operator Display (see page 27).	
No SIM Time	The credit on the SIM card is finished.	Insert a new SIM card or perform Reset Parameters.

3. CGW-I Manager

The CGW-I Manager is a utility program that lets you set your device's configuration parameters and supervise how it is being used.

The following sections describe the different CGW-I Manager menus and screens, as well as the various buttons you need to click to control these screens and the send information.

Setting Up the CGW-I Manager Software

Installing the CGW-I Manager Software

1. Insert the CGW-I Manager CD in the CD-ROM drive of your PC. The CD should run automatically.
2. At the end of each stage of installation, click the Next button to continue.

GUI Requirements

CGW-I Manager is designed to run on screens set to 1024 x 768 resolution. Any other setting may not display the program properly.





General Features

This section describes the various elements and functions that are common to many of the CGW-I Manager screens or to Windows:

- Toolbar and Status bar
- Help
- Standard buttons
- Basic file saving and printing functionality

Toolbar

The following function buttons appear on the main screen's toolbar:

Name	Button	Function
New		Creates a new device configuration file.
Open		Opens an existing device configuration file.
Save		Saves the open device configuration file.
Print		Prints the contents of the open device configuration file.

Status Bar

The Status bar at the bottom of the Main screen displays important messages about the current screen or how to get further Help.

Help

CGW-I Manager comes with context sensitive Help which describes each field and button.

- To view Help for a window, press the screen's Help button.
- To view Help for a specific field, select it and press the F1 button.
- To view the main Help window, select Help ⇒ Help Topics. From any specific Help page, clicking the Contents tab will also display the main Help window.

Buttons

The following table describes the different buttons found throughout the various CGW-I Manager screens.

Button	Function
OK	Saves any changes you have made and then closes this window.
Apply	Sends the changes made on this window to your device, but without closing the window. If this is the first time you are sending parameters to your device since login, a password is required.
Cancel	Closes this window.
Close	Closes this window and retains the changes you have made.
Help	Displays all Help topics.

File Menu

The following table describes the different File menu options.

Button	Function
New	Creates a new configuration file, based on the default parameters. Toolbar shortcut: New button.
Open	Opens an existing configuration file. Toolbar shortcut: Open button.
Save	Saves the current configuration file. Toolbar shortcut: Save button.
Save As	Saves the current configuration file with a different name and/or in a different directory.
Page Setup	Defines the printer paper setup. Toolbar shortcut: Print button.

Button	Function
Print Configuration	Gives a choice of printing options: All, Control Parameters, Toll Restriction, Statistics.
Print Preview	Shows a preview of the information to be printed.
Print	Prints the contents of the current configuration file.
Recent File	Shows the most recently used configuration files.
Exit	Closes the program.

View Menu

The following table describes the different options listed on the View menu.

Button	Function
Toolbar	Select the Toolbar option (i.e., checked) to display the Toolbar at the top of the screen.
Status Bar	Select the Status Bar option (i.e., checked) to display the Status bar at the bottom of the screen.

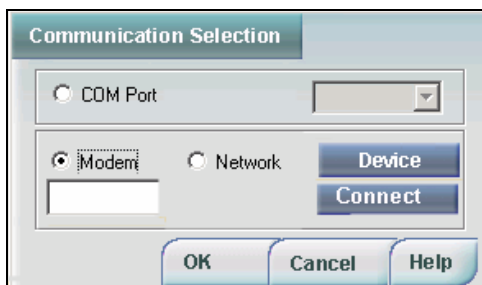
Communication Menu

The Communication menu lists the following options for setting up communication between the CGW-I Manager and your device:

- Communication Selection
- Network Settings
- Read Parameters
- Send Parameters
- Password

The following sections describe each option and the windows that they open.

Communication Selection



The Communication Selection window lets you set up a communication channel from your PC to your CGW-I. You can choose from the following connections: COM Port, Network or Modem.

To open the Communication Selection window:

From the Main menu, select: Communication ⇒ Communication Selection.

COM Port

The COM Port option lets you communicate with your device through the Serial port of your PC.

To set up a COM Port connection:

1. Click the COM Port option
2. Select the port that connects your computer to your device from the COM Port list.
3. Click OK to update the CGW-I Manager of your new communication selection.

Modem

The Modem option lets you communicate with your CGW-I from a PC using a modem.

Note:

E-mail system alarms that you set can only be sent if your CGW-I is connected to a LAN with an IP connection.

To connect to your device using a modem:

1. Click the Modem option to enable the Device button.
2. Do one of the following:
 - Enter the telephone number of the CGW-I in the modem field.
Note:
The CGW-I device you are connecting to and its telephone number must already be defined in the Device Database. See the Device Selection section for more details on defining your CGW-I device.
 - Click the Device button to open the Device Selection window, select the CGW-I device you are connecting to, then click OK to accept your choice and close the Device Selection window.
Note:
Since you are connecting with a modem, a phone number of the CGW-I must be defined. See the Device Selection section for more details on defining a modem.
3. The CGW-I modem's phone number appears in the Modem field of the Communication Selection window. Click the Connect button to dial the modem and initiate communication.
4. Click OK to update the CGW-I Manager of your new communication selection.

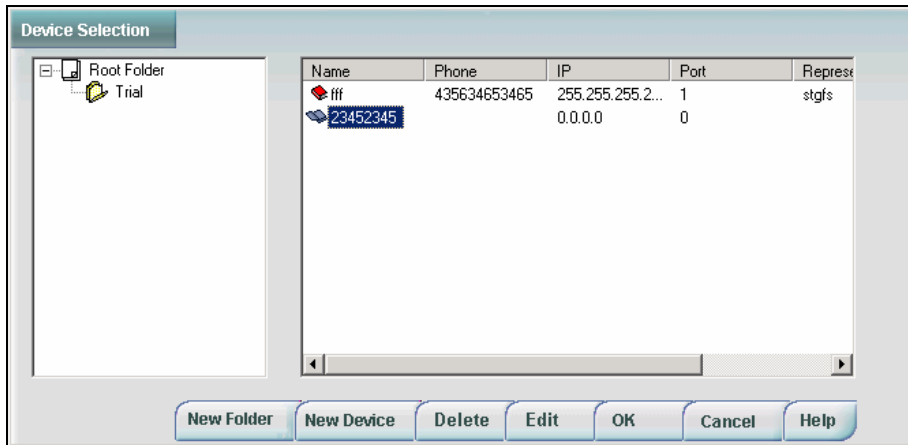
Network

The Network option lets you communicate with your device over a network.

To set up a Network connection:

1. Click the Network option to enable the Device button, then click the Device button to open the Device Selection window.
2. Select your CGW-I device, then click OK to accept your choice and close the Device Selection window.
3. Click OK to update the CGW-I Manager of your new communication selection.

Device Selection



The Device Selection window displays the Device Database showing a tree structure of the different CGW-I devices that you may want to connect to from a PC. For example, if you are installing multiple CGW-I devices in different locations, you may want to create a different branch (i.e., folder) for each location. Each branch will store the different CGW-I devices at the specific location.

To open the Device Selection window:

Click the Device button in the Communication Selection window.

Note:

If you select either Network or Modem to communicate with your CGW-I, the network administrator must add the contact information of the CGW-I unit to the Device Database.

Since the Root branch cannot contain a device, you must first create a new folder that you will use to store a device.

To begin a new branch in the database tree:

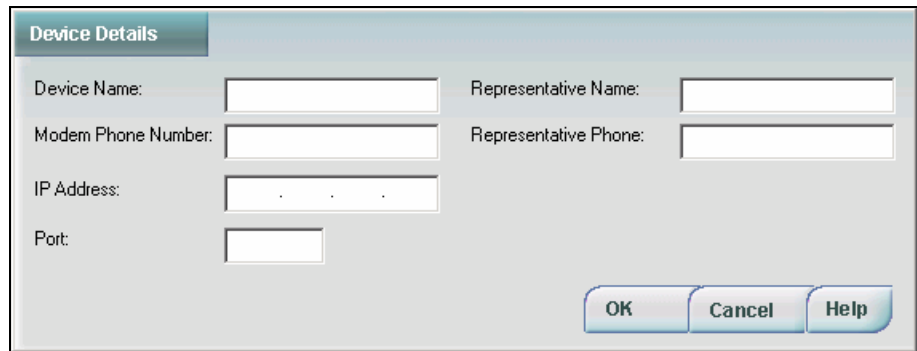
1. Click the New Folder button to open the Folder window to enter the folder's name.



2. Enter the new folder's name and click OK. The folder now appears as a new branch in the Device Database tree.

To add a new device to a folder:

1. Go to the folder you are creating the device then click the New Device button. The Device Details window opens.



2. Define the settings required to communicate with your CGW-I device. Enter the following parameters:

Field	Parameter
Device Name	Name of your device
Modem Phone Number	Phone number if connecting to the device with a modem
IP Address	IP Address of your device
Port Number	Port Number of your device
Representative Name	Contact person responsible for this device
Representative Phone	Phone number of the contact person responsible for this device

To delete a device or folder:

1. Select the folder or device you want to delete then click the Delete button.
2. If you are deleting a folder that has devices, you will see a warning that they will all be deleted. If you click Yes to delete it, the folder and all its contents are erased from the database.

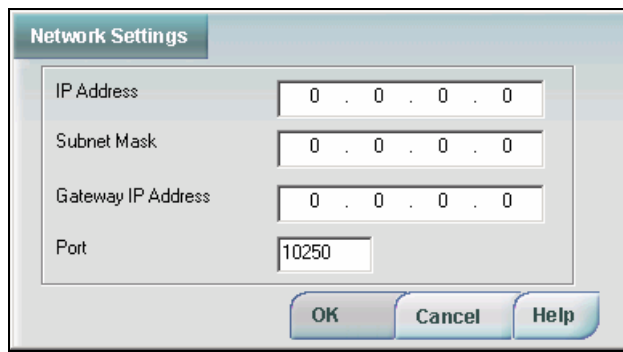
To edit a folder name:

1. Select the folder name you want to edit, then click the Edit button. The Folder name window appears.
2. Change the name of the folder and click OK.

To edit a device's details:

1. Select the device you want to edit, then click the Edit button. The Device Details window appears.
2. Change the details of the device and click OK.

Network Settings



The screenshot shows a 'Network Settings' dialog box with the following fields and values:

Field	Value
IP Address	0 . 0 . 0 . 0
Subnet Mask	0 . 0 . 0 . 0
Gateway IP Address	0 . 0 . 0 . 0
Port	10250

Buttons: OK, Cancel, Help

If your CGW-I device is connected to the network, the Network Settings window lets you define its address so that you can communicate with it remotely over TCP/IP.

Field	Parameter
IP Address	IP Address of your device in the network
Subnet Mask	Subnet Mask of your device in the network
Gateway IP Address	IP Address of the network gateway
Port	Port used by your device

Reading Current Parameters

To download all configuration parameters from the connected CGW-I, select: Communication ⇒ Read Parameters, then click OK to read the parameters.

Notes:

You must be connected to the device to read parameters. A password must be entered before you can read parameters for the first time (default=1234) during a connection to a specific CGW-I device. It is recommended that you change the password.

A gray bar will show the loading progress, followed by a message indicating whether the action was successful or not. If it was, the different CGW-I Manager screens now display all the current parameters of the connected CGW-I.

Sending Current Parameters

You can make changes to the parameters offline, without being connected to the device, but they will not be uploaded until you are connected. If you are connected and click the Apply button, any changes you have made on the open screen are sent to the device if you are connected.

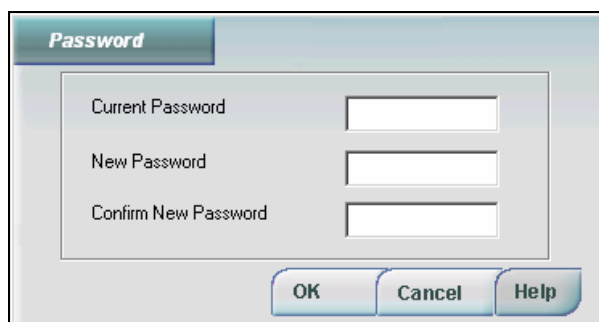
To upload the configuration parameters that you may have changed and are currently displayed on the different CGW-I Manager screens, select: Communication ⇒ Send Parameters.

Note:

You must be connected to the device to send parameters. A password must be entered the first time you make a connection to a specific CGW-I device before you can upload parameters to it.

A gray bar will show the sending progress, followed by a message indicating whether the action was successful or not.

Setting a Password



The image shows a dialog box titled "Password". It contains three text input fields labeled "Current Password", "New Password", and "Confirm New Password". Below the input fields are three buttons: "OK", "Cancel", and "Help".

A password must be filled in before reading or sending parameters.

To change the administrator's password:

1. Enter the Current Password.

Note:

Password is not case sensitive. Entry is shown in stars (*****).

2. Enter the New Password for the connected CGW-I. The password can be up to 16 characters.
3. Re-enter the new password for confirmation. A message will appear indicating if the Password has been changed successfully or not.

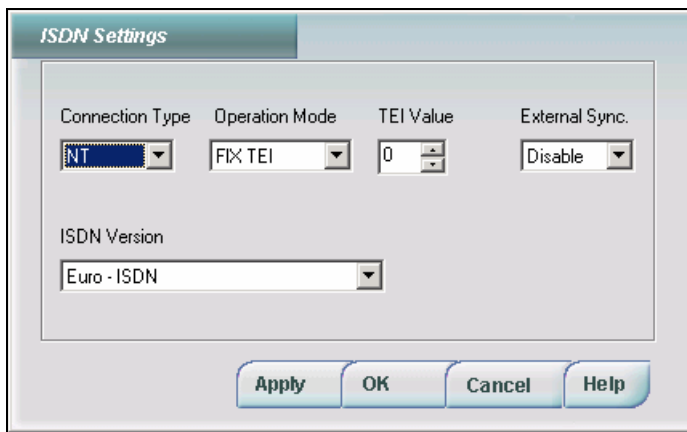
System Menu

The System menu lists the following options for configuring your CGW-I.

- ISDN Setting
- System Settings
- Channel Settings
- System Operation
- Prepaid Settings
- Control

The following sections describe each option and the windows that they open.

ISDN Settings



The ISDN Settings window lets you set the parameters of the ISDN connection to your CGW-I device. Enter the following parameters:

Field	Parameter
Connection Type	Select the BRI interface: NT or TE.
Operation Mode	Select either FIX TEI or AUTO TEI. When in AUTO TEI, the TEI value is not relevant.
TEI Value	Enter TEI (Terminal Equipment Identifier) value: 0-63. The TEI value should only be entered when the Operation Mode is PTP.
External Synchronization	<i>Enable</i> when synchronization is done by another device which connects to the Synch-In port of the CGW-I. <i>Disable</i> when the CGW-I connects to a TE interface or the CGW-I Synch-In port is not used. For more details on external synchronization, see page 10.
ISDN Version	Select current ISDN-BRI version. Choose from: <ul style="list-style-type: none"> • Euro-ISDN (default) • Euro-ISDN – In Bound DTMF Dialing • Euro-ISDN – France • 1TR6 – Germany • Euro-ISDN – Germany

System Settings

The screenshot shows the 'System Settings' window with the following configuration:

- Call Barring: Disabled
- Dial Tone To PBX: Disabled
- Call Duration Limitation: Unlimited Min.
- Balance Outgoing Calls: Enabled
- Alternate Incoming Calls: Enabled
- Override Toll Restriction: No
- Connection Signal Beeping: Enabled
- LCD Operator Display: Number
- Overlap Parameters:
 - Dialing Length: 10
 - First Digit Timeout: 20 Sec.
 - Inter Digit Timeout: 6 Sec.
 - End Dialing Digit: #
 - EnBlock Min. Digit: 5
- Toll Restriction: Configure
- Date: 10/05/2005
- Time: 09:43:31
- Company, Area, SIM 1, Name, Site, SIM 2: (Empty text boxes)
- Buttons: Apply, OK, Cancel, Help

The System Settings window lets you set the parameters for calls going through your CGW-I device. Enter the following parameters:

Field	Parameter
Call Barring	Prevents SIM from accepting incoming calls or outgoing calls. Select <i>Disable</i> to allow <i>all</i> calls.
Dial Tone to PBX	Enables or disables the device's dial tone heard on an extension phone.
Call Duration Limitation	Limits the length in minutes of outgoing calls to protect you from connections that are accidentally left open. 15-90 minutes in steps of 15 minutes each or unlimited.
Balance Outgoing Calls	The device attempts to equally distribute the number of outgoing calls sent to each SIM by alternating calls sent to each one when both SIMs are idle. If one SIM is busy, the call is automatically routed to the available card. Note: The CGW-I will not balance calls between channels if Toll Restrictions setting restrict calls to specific SIMs.
Alternate Incoming Calls	The device alternates routing of incoming calls received by each SIM between the two ISDN channels.
Override Toll Restriction	Sets up a cross-network connection if the channel is busy, regardless of what is defined as the Toll Restrictions. <i>Yes</i> routes a call to the second channel. <i>No</i> does not route a call to the second channel.
Connection Signal Beeping	Sounds a tone from end of dialing until mobile phone begins ringing.
LCD Operator Display	Number or Name. Sets the LCD display to show either the number or the name of the network operator.
Dialing Length	Defines the maximum number of digits for external calls. Range: 6-14 digits.

Field	Parameter
Inter-Digit Timeout	Number of seconds (1-60) device will wait between digits before dialing entered number.
EnBlock Minutes Digit	Minimum number of digits in EnBlock for call initiation.
First Digit Timeout	Number of seconds (1-60) device will wait between first and second digit before dialing entered number.
End Dialing Digit	Overrides all dialing timeouts to immediately dial the entered number.
Toll Restriction	Defines which cellular operator prefixes to allow the device to call and on which channel, or which ones not to allow. Click the Configure button to define the calling prefixes. For more details, see Toll Restriction (page 29).
Date	Sets current date used by device.
Time	Sets current time used by device.
Company	Defines name of company. Displayed in Customer Details on opening screen.
Name	Defines name of device. Displayed in Customer Details on opening screen.
Area	Defines area where device sits. Displayed in Customer Details on opening screen.
Site	Defines site of device. Displayed in Customer Details on opening screen.
SIM 1	Number of SIM 1. Displayed in Customer Details on opening screen.
SIM 2	Number of SIM 2. Displayed in Customer Details on opening screen.

Toll Restrictions

The screenshot shows the 'Toll Restrictions' configuration window. It is divided into two main sections: 'Allowed' and 'Not Allowed'. The 'Allowed' section is checked and contains two columns: 'Channel 1' and 'Channel 2'. Each channel has a 'Prefix List' box with a list of prefixes (054 for Channel 1, 055 for Channel 2) and three buttons: 'Add', 'Edit', and 'Delete'. The 'Not Allowed' section is unchecked and contains a single 'Prefix List' box with three buttons: 'Add', 'Edit', and 'Delete'. At the bottom of the window are 'OK', 'Cancel', and 'Help' buttons.

The Toll Restriction window defines up to 10 different cellular operator prefixes you do or don't want to permit to go through the CGW-I device and through which channel to route them. Each prefix can be up to 7 digits long. Each Allowed list can hold up to 10 prefixes. The Not Allowed list can hold up to 12 prefixes.

To allow a specific prefix to be used on a specific channel:

1. Check the Allowed checkbox to enable both Allowed Prefix List panes. They display the cellular operator prefixes your device can call on each channel.

Click the Add button for the channel you want to use for calls beginning with this prefix. The Add Prefix window is displayed.

The screenshot shows the 'Add Prefix' dialog box. It has a title bar 'Add Prefix' and a text input field. Below the input field are three buttons: 'OK', 'Cancel', and 'Help'.

2. Enter dialing prefix, then click OK. The number is added to the channel's prefix list.

Note:

Prefixes should not conflict with any existing PBX LCR Rules.

3. Add the Prefix and click OK. The number is added to the channel's Allowed Prefix List.

Not to allow a specific prefix on either channel:

1. Check the Not Allowed checkbox to enable the Not Allowed Prefix List pane. This list displays the cellular operator prefixes your device cannot call.
2. Click the Add button. The Add Prefix window is displayed.

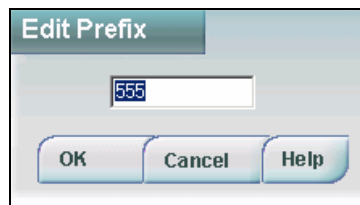
Note:

Prefixes should not conflict with any existing PBX LCR Rules.

3. Enter dialing prefix, then click OK. The number is added to the Not Allowed Prefix List.

Editing a calling prefix:

1. Click the prefix you want to edit.
2. Click the Edit button to display Edit Prefix window for the currently selected number.



3. Change the number and click OK. The updated number appears in the prefix list.

Deleting a calling prefix:

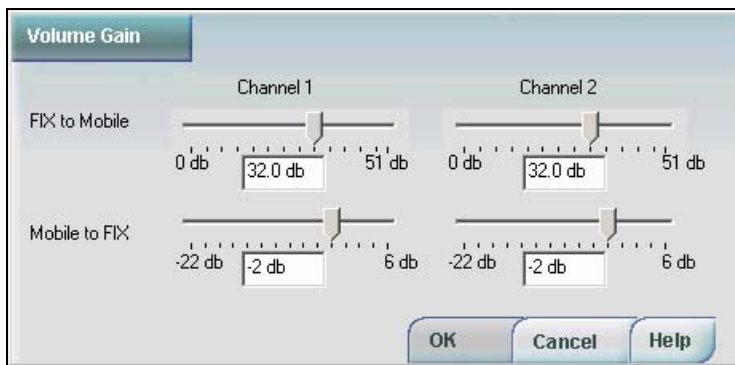
1. Click the prefix you want to delete.
2. Click the Delete button to delete. You are asked to verify the delete.
3. Click Yes to approve the delete. The prefix no longer appears on the prefix list.

Channel Settings

The Channel Settings window lets you define access to specific cellular operators and the volume levels for incoming and outgoing calls.

Field	Parameter
Network Lock	Enter network operator's number to configure device to work only with this specific operator. If field left empty, SIM first tries to register with its home network, but will connect to the strongest available network if no signal and the Roaming feature is enabled.
PIN Code	Enter password for SIM to protect it from unauthorized use if removed. Note: This field remains disabled if network operator details are the permanent factory setting. Note: If you enter an incorrect PIN three times in the Channel Settings screen and are locked out by the SIM, you must enter the PUK code to unlock the SIM. Call your network operator to get the PUK code if you do not know it.
Roaming	<i>Enable</i> to allow calls to automatically connect to an available signal which does not necessarily belong to the SIM's network operator. <i>Disable</i> to restrict calls to a specific network operator.
Call Divert	To enable the Call Divert feature, enter the number of alternate cellular gateway channel to which you will reroute all incoming calls when this channel is busy.
FIX to Mobile Gain Control	Displays the volume level (decibels) of the sound stream going into each channel <u>from</u> a fixed telephone extension. Click the Volume Gain button to adjust the level.
Mobile to FIX Gain Control	Displays the volume level (decibels) of the sound stream leaving each channel <u>to</u> the fixed telephone extension. Click the Volume Gain button to adjust the level.

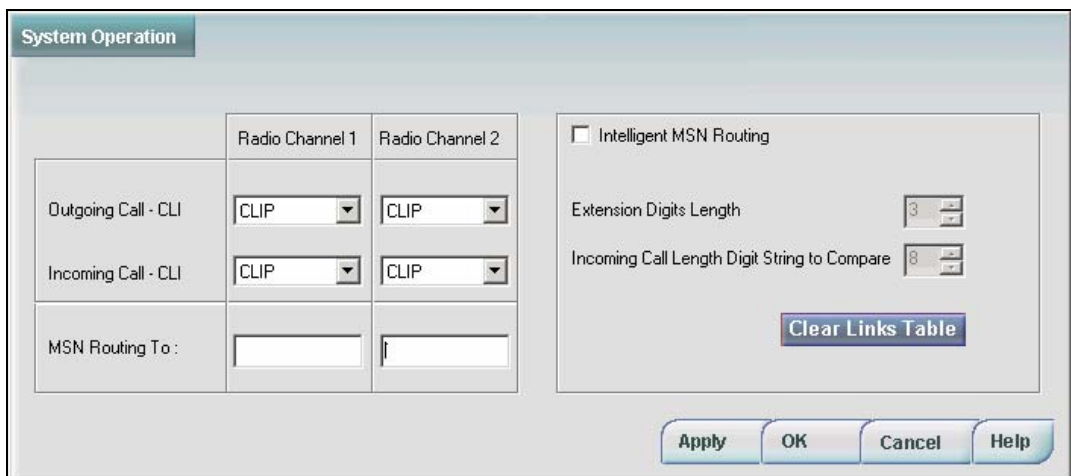
Adjusting the Volume Gain Level



To set the volume level for incoming and outgoing calls:

1. Click the Volume Gain button on the Channel Settings window.
 - The FIX to Mobile fields (Channel 1 and Channel 2) display the volume level of the different outgoing sound streams.
 - The Mobile to FIX fields (Channel 1 and Channel 2) display the volume level of the different incoming sound streams.
2. Click and drag the volume control left (low) and right (high) to set the volume to most comfortable listening level, then click OK.

System Operation



The System Operation window lets you enable the display of Caller IDs and define call routing options.

Field	Parameter
Outgoing Call - CLI	<p><i>CLIP</i> (Calling Line Identification Presentation) Transmits the calling SIM card's number.</p> <p><i>CLIR</i> (Calling Line Identification Restriction) Prevents the transmission of the calling SIM card's number.</p>

Field	Parameter
Incoming Call - CLI	<p><i>CLIP</i> (Calling Line Identification Presentation) Allows transmission of an incoming call's identification number.</p> <p><i>CLIR</i> (Calling Line Identification Restriction) Prevents the transmission of an incoming call's identification number.</p> <p>Note: Select CLIR if your PBX is unable to handle varying incoming caller ID formats.</p> <p>Note: The Intelligent MSN Routing feature is disabled if you select CLIR for incoming calls.</p>
MSN Routing	<p>Enter the default Multi-Subscriber Number to route incoming calls made to this specific SIM's cellular number. The MSN may be a specific extension, Automated Attendant or Voice Mail system.</p>
Intelligent MSN Routing Checkbox	<p>Check to enable linking between dialing extensions and dialed cellular numbers.</p> <p>See Links Table section for details.</p> <p>Note: To enable the Intelligent MSN Routing feature, both the Incoming and Outgoing Call CLI must be set "Presentation" (CLIP).</p>
Extension Digits Length	<p>Define the length of a dialer's extension.</p> <p>Range: 0-16 digits.</p>
Incoming Call Length Digit String to Compare	<p>Set the number of digits in an incoming call's phone number to compare to linked dialed cellular numbers. Numbers are counted from right-to-left (last to first).</p> <p>Range: 0-16 digits.</p> <p>Note: Some DDI cellular numbers automatically include additional digits, such as a Country Code. By defining the number of digits on an incoming call, you are able to cut off additional digits that may cause problems, such as identifying a called number that is stored in the Links Database.</p>

Links Table

Your CGW-I device can store up to 1,500 links between outgoing caller IDs and dialed numbers. When a Direct Dial-In (DDI) calls back, your device recognizes the DDI's cellular number in the Links Table and can route the call to the extension of the person that last dialed this cellular number.

Clearing the Links Table

To clear the Links Table, click the Clear Links Table button. All stored links created by the Intelligent MSN Routing feature are deleted.

Prepaid Settings

The Prepaid Settings window lets you set up prepaid SIM parameters.

Field	Parameter
SIM Setup	
Enable SIM Setup Parameters Checkbox	Check to enable the SIM Setup and Reset Parameters below, as well as the Remaining Prepaid SIM Time fields in the Statistics screen (see page 38).
Free Time	Enter amount of free calling time credit awarded by the network provider for the month for each SIM. Range: 1-9999
Prepaid Time	Enter the number of monthly discounted minutes (calling time threshold) for each SIM card, not including Free Time minutes. The remaining amount of unused prepaid time is displayed on the Statistics screen (page 38). Range: 1-9999 Before this threshold level is reached, an alarm will be triggered if the SIM Operation Time alarm is set (checked). For example, you may purchase a 5000 minute SIM card that allows 1,000 minutes at a discounted cost per minute each month. Any calls made beyond the 1,000 minutes will cost more. In such a case, you must set the Prepaid Time to 1,000 to alert you must stop using the card and replace it with a new discounted card.

Field	Parameter
Disable Channel Method	<p>Choose one of the following when a SIM card exceeds the maximum number of minutes allowed (i.e., free + minutes + grace/part of grace):</p> <p>No Blocking: Unit will never block outgoing calls</p> <p>Precise Blocking: Unit will disable outgoing calls exactly when the Prepaid Time is finished, even while a conversation is in progress.</p> <p>Gentle Blocking: Once Prepaid Time is finished, unit will allow the call to continue for allowed Grace Time period, but will disable further outgoing calls.</p> <p>This function works independently for each channel, so if 1 SIM card has reached its limit, you can still make calls using the SIM.</p> <p>Note: Once a radio channel is disabled, the LCD will display the message “Blocked Outgoing”.</p> <p>If a channel is blocked because Prepaid Time is finished, you can do one of the following:</p> <ul style="list-style-type: none"> • Increase Prepaid Time for the SIM, then perform “Send Parameters” action. This will release blocking of outgoing calls. • Change the Reset Day and Time to the current day and time.
Allow grace of	<p>When Gentle Blocking is selected in Disable Channel Method, the number of minutes that a call which has exceeded the SIM’s Prepaid Time credit (and is now using more expensive calling credit) may continue without being disconnected.</p> <p>Range: 0-99</p> <p>If 0 is entered, a call that exceeds the Prepaid Time value will be disconnected immediately.</p>
Time Unit	<p>Amount of real connection time in seconds that equals what the network operator defines as one unit of Charge Connection Time.</p> <p>For example, a 12 second Time Unit may equal 1 unit of Charge Time. If a call is 15 seconds long, the network operator will charge for 2 units of connection time (i.e., 24 seconds of Accumulated Time), regardless of the true length of the call.</p> <p>Note: Before you can change the Time Unit, you must reset the Accumulated Time counter to 0. For more details, see the Resetting Checked Counters section below.</p>
Reset Parameters	
SIM Reset Day	<p>The day in the month that your SIM time counters (i.e., Prepaid, Free, and Remaining Prepaid) are reset.</p> <p>Range: 1-28</p>
Reset Time	<p>The time that your SIM time counters (i.e., Prepaid, Free, and Remaining Prepaid) are reset on the day you have set for the associated SIM card.</p>

Field	Parameter
Beep in the last	The number of minutes before your Prepaid Time credit is finished that the system will begin beeping (once each minute) to alert you that a SIM's discounted time is almost finished. Range: 0-99

Controlling the CGW-I

The System menu includes a number of options for resetting, clearing and closing your CGW-I device. To choose one of these options, select: System ⇒ Control. The options are described below:

Function	Description
Reset Device	Performs a reset on your device if it stops responding. When your device is reset, all temporary data is lost (i.e., counters and MSN Routing Links).
Reset GSM Channel	Resets the engine of the selected channel (1 or 2) if channel stops responding.
Reset ISDN Interface	Resets communications protocol between device and ISDN layers 1, 2, and 3.
Cellular Daily Restart	Allows you to set a time for a daily cellular engine restart to be performed automatically by the unit for each of the two channels.
Gentle Closing	Prevents any new connections to be made on any channel. Any current connection will remain open until the call is ended. After doing a gentle close, you must select <i>Reset Device</i> to use it again.
Back to Factory Defaults	Resets all parameters to their default settings.

Report Menu

The Reports menu lists the following options to monitor how your CGW-I is handling call traffic:

- Properties
- Statistics
- CDR (Read and Clear)
- Alarms
- Status

Each option is described in one of the following sections.

Properties



The Properties window displays the specific manufacturing details of your CGW-I device. They are as follows:

Property	Manufacturing Detail
Device Serial Number	Serial number of your device.
Software Version	Software version of your device.
Hardware Version	Hardware version of your device.
Module Type	Module type used for both channels.
Module SW Version	Module software version used by each channel.

Statistics

The Statistics window displays the amount of time each SIM is used and if there are problems with reception.

The counters are explained in the following table.

Field	Parameter
Accumulated Time	Total amount of time in seconds, based on the defined Time Unit, that each SIM was used for outgoing calls since the counter was last reset. For example, if the real total time of a call is 30 seconds, but the Time Unit was set to a 12 second Time Unit interval, the Accumulated Time will be logged as 36 seconds (i.e., based on the use of 3 Time Units).
Bad Reception Level Counter	Number of times that each SIM experiences a Bad Reception Level for more than FOUR consecutive minutes. The number displayed is from the time the counter was last reset. For example, if the SIM experiences a Bad Reception Level for 9 consecutive minutes, the counter is increased 2 times.

Resetting Checked Counters

To reset a counter, check it and click the Reset Checked Counters button. The counter is reset to 0. You can check and reset multiple counters at the same time, but CGW-I Manager will only reset the counters that are checked.

Note:

When you reset checked counters, CGW-I Manager makes a connection to the device.

Reception Level Alarm Triggers are explained in the following table.

Field	Parameter
Bad Reception Level Threshold	Number of times that the Bad Reception Level counter is incremented before triggering an alarm. For example, if the threshold is set to 10, an alarm will be triggered the tenth time that the Bad Reception Level Counter reaches the defined Bad Reception Level for at least four (consecutive) minutes.
Bad Reception Level	Define the dbm level that you consider to be bad reception. When this level is reached for more than FOUR consecutive minutes, your device will increment the Bad Reception Level Counter by one.

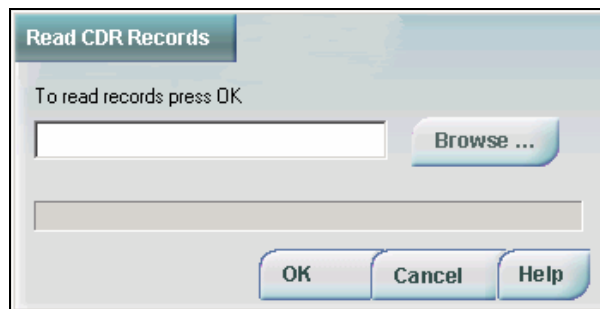
Note:

Thresholds are designed to alert you to potential problems. For details on setting up alerts, see System Alarms section.

Remaining Prepaid SIM Time fields are explained in the following table.

SIM 1, SIM 2	When the Prepaid SIM Time field is enabled (see System Operation screen, page 32), this field displays the total number of Prepaid Time still available after subtracting the total number of minutes already used from the SIM. Free Time minutes are not included in the Prepaid SIM Time calculation. If the SIM Setup Parameters are not enabled, there is no Prepaid SIM Time and the Remaining Prepaid SIM Time field remains empty. To update the Remaining Prepaid SIM Time display, click the Refresh button to read current parameters and calculated remaining time from the last call that was complete. Note: The time calculated in minutes is based on the Time Unit value defined in the System Operation screen.
--------------	---

Reading the CDR (Call Detail Record)



The Read CDR Records window lets you view the current Call Detail Record of both channels or open a previously saved record.

Each Call Detail Record can hold up to 2,500 rows. Each row displays:

- Unique Tracking Number
- If the call was Incoming (In) or Outgoing (Out)
- Start Time of the call
- Start Date of the call
- End Time of the call
- End Date of the call
- Called Number
- Calling Number
- Radio Channel
- ISDN Channel

To read the current CDR:

1. Select Report ⇒ CDR ⇒ Read CDR. The Read CDR Records window opens.
2. Enter the name for the new CDR you want to create and click OK. The file is saved in the default CGW-I directory.

To open an existing CDR or to change the path of the new CDR:

1. Click the Browse button to display the Open file window.
2. Enter the name of the new or existing CDR file, then select the directory if it is not the default CGW-I directory.
3. Click Open. The path and filename now appear in the Read CDR field.
4. Click OK to view the file.

To clear the current CDR:

Select Report ⇒ CDR ⇒ Clear CDR. The CDR Records are deleted from the CGW-I device's memory

System Alarms

	SMS	E-Mail
System Power Up	<input type="checkbox"/>	<input type="checkbox"/>
System Reset/Initialization	<input type="checkbox"/>	<input type="checkbox"/>
CDR Buffer Full (From 80%)	<input type="checkbox"/>	<input type="checkbox"/>
CDR Buffer Cleared	<input type="checkbox"/>	<input type="checkbox"/>
BRI No Link	<input type="checkbox"/>	<input type="checkbox"/>
Bad Reception Level	<input type="checkbox"/>	<input type="checkbox"/>
SIM Operation Time (95%)	<input type="checkbox"/>	<input type="checkbox"/>
Minutes Reset Successful	<input type="checkbox"/>	<input type="checkbox"/>

SMS Phone Number 1	<input type="text"/>
SMS Phone Number 2	<input type="text"/>
SMS Text	<input type="text"/>

E-Mail Address	<input type="text"/>
E-Mail Subject Text	<input type="text"/>
SMTP Server IP Address	<input type="text" value="0 . 0 . 0 . 0"/>
Device Display Name	<input type="text"/>
Device E-Mail Account	<input type="text"/>

Apply OK Cancel Help

The System Alarms window lets you define what alarms the CGW-I device should trigger and where to send notification. Alarm notifications apply to the device and both SIM cards, where applicable.

The following is a list of the different triggers that can prompt your CGW-I device to send an alarm. You must check the method of notification (i.e., SMS, E-mail) you want for each alarm.

Note:
Your CGW-I can only send an E-mail system alarm if it is connected to a LAN with an IP connection.

Field	Parameter
System Power Up	Send notification when device is powered up.
System Reset/Initialization	Send notification for each system reset or initialization

Field	Parameter
CDR Buffer 80% Full	Send notification when CDR Buffer reaches 80% threshold.
CDR Buffer Cleared	Send notification when CDR is cleared.
No BRI Link	Send notification when the BRI link to your device is broken.
Bad Reception Level	Send notification when the Bad Reception Level counter reaches the threshold level set in the Statistics window.
SIM Operation Time (95%)	Send notification when a SIM card reaches 95% of the Remaining Prepaid SIM Time value, defined in the System Operation window.
Minutes Reset Successful	Send notification when monthly SIM time counters are successfully reset.

The following table lists the information required to send an SMS alert.

Field	Parameter
SMS Phone Number 1	Enter the first number to send an SMS notification.
SMS Phone Number 2	Enter the second number to send an SMS notification.
SMS Text	Enter the subject heading text for all SMS notification. For example, you may want to know the location of your CGW-I device triggering the alarm.

The following table lists the information required to send an E-mail alert.

Field	Parameter
E-mail Address	Enter the E-mail address to send a message.
E-mail Subject Text	Enter the subject text for each E-mail notification. For example, enter the name and location of your device triggering the alarm.
SMTP Server IP Address	Enter the SMTP Server's IP Address. You can press the space bar to move to the next part of the address. If you enter a number greater than 255, CGW-I automatically resets the number to 255.
Device Display Name	Enter the name of your device that is displayed on E-mail
Device E-mail Account	Enter the account used to send all notifications for your device.

System Statuses



The Status window provides a dynamic display of the following status levels for each radio channel. For more details on Error messages, which are also displayed on the LCD, see page 15.

Status	Description
Reception Level	<p>The level of the received signal. Range: -113 dbm (weak) to -51dbm (hi).</p> <p>If reception level is low, the antenna location or type of cable may need to be improved.</p> <p>Suggestions to improve antenna placement: move close to window or to a higher floor, place on larger metal plate, connect cable providing lower signal loss.</p>
Radio Channel Status States	<p>Displays status of each radio channel:</p> <ul style="list-style-type: none"> • Idle • Calling Out • Connected • Disconnecting • Ringing In (Receiving incoming call) • Initialize (After Reset or Power Up) • Stopped (Due to communication error) • HW Reset • No Radio Engine • Disable • Sending SMS • No SIM Time.

Status	Description
Radio Channel Status States	Displays status of each radio channel: <ul style="list-style-type: none"> • Idle • Calling Out • Connected • Disconnecting • Ringing In (Receiving incoming call) • Initialize (After Reset or Power Up) • Stopped (Due to communication error) • HW Reset • No Radio Engine • Disable • Sending SMS • No SIM Time.
ISDN Channel Status States	Displays one of the following ISDN channel states: <ul style="list-style-type: none"> • Idle • Calling Out (Making an outgoing call) • Connected • Disconnecting • Ringing In (Receiving an incoming call) • Initializing (After Reset or Power Up) • ISDN Interface Error Layer (ISDN Protocol Layer error) • No Sync (Synchronization error) • No Link (PBX physical link error)

Appendix A:

Technical Specifications

Model	Device
GSM Network Type	GSM Phase II
GSM Module	(2) Integrated Dual Band (900/1800 or 850/1900 MHz)
SIM card	Plug-in, 3V or 5V, small
Transmission Power	Max. 2W / 850 MHz Max. 2W / 900 MHz Max. 1W / 1800 MHz Max. 1W / 1900 MHz
Receiver Sensitivity	-104 dBm
ISDN Interface Point Reference	TE or NT
ISDN Interface	PtP or PtMP for FIX TEI and AUTO TEI
ISDN Type	EuroISDN (Standard, In Bound DTMF Dialing, France, Germany), 1TR6 (Germany)
Dial Length	Up to 5 digits – operator services or emergency calls Up to 16 digits – normal GSM operation
Antenna Frequency	800-1900 MHz
Antenna Maximum Power	2W
Antenna Gain	2.5dB
Antenna Cable Length	3 meters
Antenna Polarization	Omni
Antenna VSWR	<1.5
Antenna Impedance	50Ω
Connectors	RS-232 Connector – RJ-11 Power Supply Connector – DC Power Jack Antenna Connector – SMA Female (2) LAN Interface Connector – RJ-45 ISDN – RJ-45 (2)
Internal Backup Battery	Lithium battery
Power Supply Input:	110VAC, 60Hz 230VAC, 50Hz
Power Supply Output:	9VDC, 1.5A
Temperature Range	0°C-45°C /32°F-113°F
Max. Relative Humidity	95%
Dimensions (HxWxD) (without connectors)	215x42x125mm



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Document Control # CGWI-M002ID