

SIMADO GFX11 System Manual

*Version 4
August 2007*



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Documentation Information

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Section 1: Introduction

Welcome

Thanks for purchasing a Matrix product.

We want you to get the maximum performance from our product. If you run into technical difficulties, we are here to help. But please consult this system manual first.

If you still can't find the answer, gather all the information or questions that apply to your problem and with the product close to you, call your dealer. Matrix dealers are trained and ready to give you the support you need to get the most from your Matrix product. In fact, most problems reported are minor and can be easily solved over the phone.

In addition, technical consultation is available from Matrix engineers every business day. We are always ready to give advice on application requirements or specific information on installation and operation of our products.

The following features are provided by the Network Service Provider. The user can access these as long as they are enabled by the Service Provider:

- Call Divert 37
- CLIR 44
- Location Information Indication 63

The system manual is divided in following sections:

Section 1: Introduction

Section 2: Features and Facilities

Section 3: Appendices

We suggest the first time users to read this system manual in the following sequence.

- Section 1
- Section 2 (in the hierarchy given below)
 - Programming the System through FXS Port 68
 - Default the Configuration 45

- Restart the System 71
- GSM Port Parameters 55
- FXS Port Parameters 53
- Allowed and Denied Lists 27
- Automatic Number Translation 31

The user can use page named 'Notes' for making note of customer's requirement and 'Programming Register' for registering the programming changes datewise. These could be used for future reference.

Packing List

The ideal sales package for SIMADO GFX11 is as mentioned below:

Sr.	Accessories	Qty
01	SIMADO GFX11	1
02	Antenna	1
03	System Manual	1
04	Adapter 9VDC 1Amp	1
05	Line Cord for FXS port	1
06	Screw M 7/30	2
07	Screw Grip	2
08	Warranty Card Set	1
09	Support Card	1
10	Mounting Template	1
11	SIMADO GFX11 CD	1

- Please make sure that these components are present.
- In case of short supply or damage detection, contact the source from where you have purchased the system.

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Warranty Statement

Matrix Telecom Pvt. Ltd. (Matrix) warrants to its consumer purchaser any of its products to be free of defects in material, workmanship and performance for a period of 15 months from date of manufacturing or 12 months from the date of installation which ever is earlier.

During this warranty period, Matrix will at its option, repair or replace the product at no additional charge if the product is found to have manufacturing defect. Any replacement product or part/s may be furnished on an exchange basis, which shall be new or like-new, provided that it has functionality at least equal to that of the product, being replaced. All replacement parts and products will be the property of Matrix. Parts repaired or replaced will be under warranty throughout the remainder of the original warranty period only.

This limited warranty does not apply to:

1. Products that have been subjected to abuse, accident, natural disaster, misuse, modification, tampering, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed.
2. Products which have been damaged by lightning storms, water or power surges or which have been neglected, altered, used for a purpose other than the one for which they were manufactured, repaired by customer or any party without Matrix's written authorization or used in any manner inconsistent with Matrix's instructions.
3. Products received improperly packed or physically damaged.
4. Products damaged due to operation of product outside the products' specifications or use without designated protections.

Warranty valid only if:

- Primary protection on all the ports provided.
- Mains supply is within limit and protected.
- Environment conditions are maintained as per the product specifications.

Warranty Card:

- When the product is installed, please return the warranty card with:
 - Date, signature and stamp of the customer.
 - Date, signature and stamp of the channel partner.
- Matrix assumes that the customer agrees with the warranty terms even when the warranty card is not signed and returned as suggested.

The Purchaser shall have to bear shipping charges for sending product to Matrix for testing/rectification. The product shall be shipped to the Purchaser at no-charge if the material is found to be under warranty. The Purchaser shall have to either insure the product or assume liability for loss or damage during transit. Matrix reserves the right to waive off or make any changes in its warranty policy without giving any notice.

If Matrix is unable to repair or replace, as applicable, a defective product which is covered by Matrix warranty, Matrix shall, within a reasonable time after being notified of the defect, refund the purchase price of the product provided the consumer/purchaser returns the product to Matrix.

In no event will Matrix be liable for any damages including lost profits, lost business, lost savings, downtime or delay, labor, repair or material cost, injury to person, property or other incidental or consequential damages arising out of use of or inability to use such product, even if Matrix has been advised of the possibility of such damages or losses or for any claim by any other party.

Except for the obligations specifically set forth in this Warranty Policy Statement, in no event shall Matrix be liable for any direct, indirect, special, incidental or consequential damages whether based on contract or any other legal theory and where advised of the possibility of such damages.

Neither Matrix nor any of its distributors, dealers or sub-dealers makes any other warranty of any kind, whether expressed or implied, with respect to Matrix products. Matrix and its distributors,

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dealers or sub-dealers specifically disclaim the implied warranties of merchantability and fitness for a particular purpose.

This warranty is not transferable and applies only to the original consumer purchaser of the Product. Warranty shall be void if the warranty card is not completed and registered with Matrix within 30 days of installation.

All legal course of action subjected to Vadodara (Gujarat, India) Jurisdiction only.

Introducing the System

Matrix offers the SIMADO GFX11, a compact device for initiating a mobile call. This unit consists of a FXS port which can be interfaced to a PBX and a socket for inserting one SIM card. A simple conventional telephone instrument/CLI display telephone instrument can be interfaced to the SIMADO GFX11. You can select the GSM frequency Band for the system.

You can call GSM number, directly from analog phone, without paying extra PSTN charges for the call.

The SIMADO GFX11 finds its application in business establishments, STD/PCO booths, SOHO, Institutions, etc.

The Matrix product offers many features, of which few are listed below:

1. Allowed and Denied Lists.
2. Automatic Number Translation.
3. Short Messaging Services.
4. Call Divert
5. Hotline.
6. Emergency Number Dialing.
7. Call Progress Tone as per country.

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The SIMADO GFX11 is shown in the figure given below:



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Protecting the System

Installation Precautions:

- Do not install in direct sunlight and excessive cold or humid places.
- Do not install at places where sulfuric gases are produced and in areas where there are thermal springs, etc. because it may damage the equipment or contacts.
- Do not install at places where shocks or vibrations are frequent or strong.
- Do not install at dusty places or places where water or oil may come into contact with the system.
- Do not obstruct area around the system (for reasons of maintenance and inspection be especially careful to allow space for cooling above and at the sides of the system).

Important Safety Instructions:

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Read and understand all instructions.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a dry and soft cloth for cleaning.
- Do not use this product near water. For example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Do not open the system in power ON condition.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
- Interfacing cables should not touch the exposed power line cable.
- This product should be operated with proper supply voltage. If you are not sure about supply voltage, contact authorized dealer. It is advisable to give proper, stabilized power.
- Do not allow anything to rest on the power cord of product or AC-DC Adapter. Do not place this product where the cord will be misused by people walking on it.
- Do not overload wall outlets and extension cords as this can

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- result in the risk of fire or electric shock.
- Unplug this product from the wall outlet and contact qualified service personnel under the following conditions:
 - a) When the power supply cord or plug is damaged or frayed.
 - b) If liquid has been spilled into the product.
 - c) If the product has been exposed to rain or water.
 - d) If the product does not operate normally by following the operating instructions. Adjust only those controls, which are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - e) If the product has been dropped or the cabinet has been damaged.
 - f) If the product exhibits a distinct change in performance.
 - Do not use the telephone of the product to report a gas leak in the vicinity of the leak.

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Getting Started

Overview

The Matrix SIMADO GFX11 allows you to call GSM number from the normal analog phone and establish a voice call. The GFX11 connects to the phone, SIM card and Antenna. The Matrix product looks as shown below:



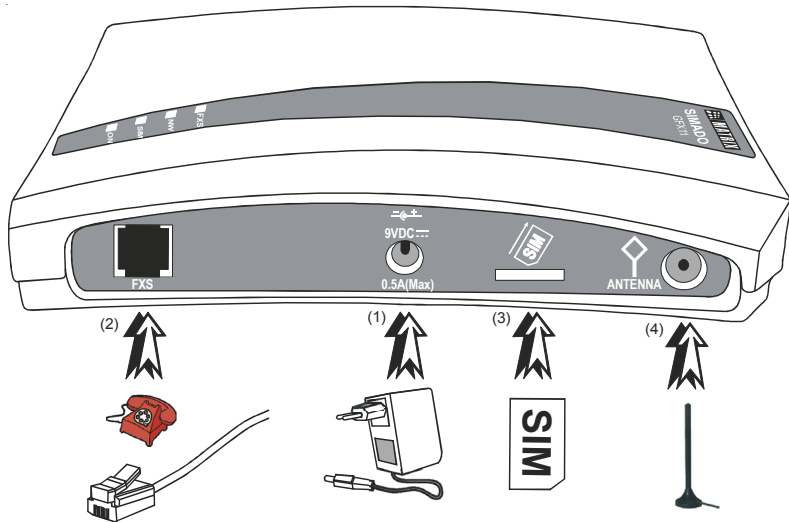
This chapter gets the GFX11 up and running quickly. The details which we have skipped to make this brief can be found elsewhere in the manual. It is divided into four sections:

- Getting to know the GFX11.
- Instruction for connecting Interfaces.
- Basic steps for configuration.
- Making phone calls.

Getting to Know GFX11

This Matrix product has all the ports located on the side panel and LED's located on the front panel as shown below:

Side Panel Ports:



Various interfaces for connection are as mentioned below:

No.	Port Name	Connector	Description
1	Power	DC Jack	Power Adaptor Output : 9Volt, 1Amp. Input: 90-265VAC, 47-65Hz.
2	FXS	RJ11	To connect analog telephone with CLI display.
3	SIM Card	Slot	To insert the SIM card from Service Provider.
4	Antenna	TNC	To connect the Antenna provided with GFX11 with cable or without cable type.

Front Panel LED's:

The GFX11 has four LED's as mentioned below:

LED Label	Meaning
ON	Power supply ON/OFF status
SIM	Detection of SIM card status
NW	Indicates if the GFX11 is fully registered with GSM network or not
FXS	ON-Hook or OFF-Hook status of the telephone connected

These LED's indication is different during reset sequence and normal condition as explained below:

- Reset Sequence.
- Normal Condition.

Reset Sequence:

Time	Response
At power ON	LEDs labeled 'ON', 'SIM', 'FXS' glow together
After 500 msec.	All the LEDs except 'ON' go OFF. Not applicable for Network LED. Network LED behavior depends on type of GSM Engine.
After 1 sec.	The LEDs labeled 'SIM', 'FXS' blink thrice 500 msec ON, 500 msec OFF

Error Sequence:

Time	Response
GSM Module Communication Failure	FXS LED 500 msec. ON, 500 msec. OFF continuous
GSM Module Identification Failure/Auto Baud Failure	FXS LED 1 sec. ON, 1 sec. OFF continuous
SIM Absent	SIM LED 1 sec. ON, 1 sec. OFF continuous

- The SIM card detection takes place automatically (approximately after 5 secs.) and once it is detected, LED marked 'SIM' stays continuously ON.

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- SIMADO GFX11 now searches for the network and when successfully registered on the network, LED marked 'NW' flashes slowly.
- When the network is available LED marked 'NW' starts blinking slightly faster.
- The SIMADO GFX11 is now ready for use.
- When the communication is in process LED marked 'NW' flashes faster.
- The blinking of LED marked 'SIM' in the power ON state may be due to loose connection of SIM card. In such situations, restart the system after fixing the SIM card properly.

Normal Condition:

Following table shows the summary of LED indications in normal mode.

LED Status	ON	SIM	NW	FXS
ON	GFX11 ON	Present and activated	Module switch ON, not registered on the network	OFF-Hook
OFF	GFX11 OFF	NA	Module OFF	ON-Hook
Blinking	-	Absent or deactivated. Try to enter SIM PIN.	<u>Slow Blink</u> : Module switched ON, registered on the network. <u>Quick Blink</u> : Module switched ON, registered on the network. Communication in progress	Ringling

For example, SIM LED status may be 'Blinking'. This means that the system has not detected the SIM card or the SIM is deactivated.

Instruction for the Connecting Interfaces:

This section, describes the instruction on how to connect the Matrix GFX11 to GSM network and telephone.

- Unpack the box. Get satisfied with the contents and the condition of the parts. Refer to [Packing List](#). If parts are OK, proceed with connection as shown below:
- Mount the GFX11, in a safe and convenient location where cables for phone system and adaptor are accessible. For this mechanical drawing can be used as a reference which is provided at the end of chapter.
- Connect one end of telephone cable, RJ11 to FXS port and the other end to analog telephone with CLI display.
- Insert a SIM card. Place the telephone at maximum possible distance from the GFX11.
- Connect the antenna which is supplied with the product, to the Antenna connector, on the side panel. Gently tighten the connection, with a suitable spanner. If Antenna is with cable type, fix it to the suitable location.
- Check the voltage from the power point from where the supply is to be accessed. It should be between 90-265VAC, 47-65Hz. Insert the DC output terminal of power adaptor into the 'Power' jack of the GFX11 and connect the power adaptor to a wall outlet for AC Mains. Your GFX11 is now ready for switching ON.

Basic Steps for Configuration:

- Switch ON the power through 'Adaptor' and wait for LED's to attain normal state.

ABSOLUTELY NEEDED !

- Ensure network availability
- Make sure that your GSM module is registered with GSM network

- ***By default, you can call any number from the GSM port by using analog phone.***
- You can use the GFX11 for other features by programming through the analog phone, for either System Engineer (SE) mode or System Administrator (SA) mode.
- Enter the SE mode by: Lift the handset → Dial Tone → ***#-19-1234***. You get programming tone. Use this mode for basic

functions like programming through FXS.

- For some features, like change SA Password, Display Software Version enter the SA mode of programming by: Lift the handset → Dial Tone → **#*-18-1111**. Refer chapter Programming the System through FXS Port.
- Features like Call Divert can be programmed by any mode SE/SA.
- When programming is complete, just dial **00-#***, to exit the programming mode.
- Some feature may need to be subscribed from your GSM Service Provider before you program it.

Subscribe from your GSM Service Provider

- Call Divert
- CLIR
- Location Information Indication

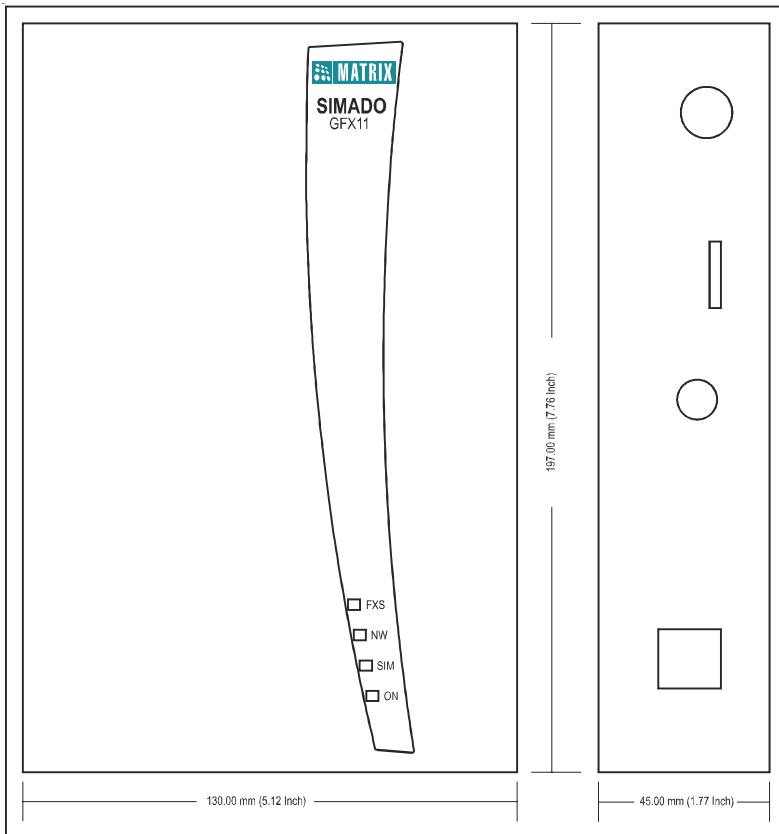
- During programming, if you find there is some network problem, then you can restart the system by dialing **105-1234-#***.
- If you need to reprogram the system, you can get back to factory default parameters.

Making Phone Calls:

- Lift the handset. You get the Dial Tone of GFX11 unit.
- Dial the external telephone number.
- The number is dialed out from the GSM port and you get Ring Back Tone (RBT), from the network.
- If the called party attends the call, speech is established.

Incoming Call:

- For incoming call, refer chapter 'Call Progress Tones'.

Mechanical Dimension of SIMADO GFX11**Relevant Topic:**

1. Programming the System through FXS Port 68

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Section 2: Features and Facilities

Allowed and Denied Lists

What's this?

- Allowed and Denied Lists are a group of number strings. When the number is dialed out, the SIMADO GFX11 compares the dialed number string with the number strings in the Allowed and Denied Lists. If the number matches with the denied list number then error tone is issued to the caller.
- If the number is not there both in Allowed and Denied Lists, the number is dialed out.

How it works?

Maximum of 5 entries can be programmed in an allowed or denied list. Each entry (i.e. one number string) can have maximum of 16 digits. It is required to be in the SE mode for programming the Allowed and Denied Lists.

How to program?

Step 1: List down the numbers to be programmed in Allowed and Denied Lists.

Step 2: Program the number strings in the allowed list using command **261**.

Step 3: Program the number strings in the denied list using command **262**.

Step 1

Take a pen and paper. Decide which numbers are to be allowed and which numbers are to be denied. Make the allowed and denied lists accordingly.

Step 2

Use following command to program numbers in the allowed list:

261-Location Index-Number-#*

Where,

Location Index is from 1 to 5.

Number is the telephone number of maximum 16 digits.

Step 3

Use following command to program numbers in the denied list:

262-Location Index-Number-#*

Where,

Location Index is from 1 to 5.

Number is the telephone number of maximum 16 digits.

By default, Allowed and Denied Lists have no numbers (Blank).

The default Allowed and Denied Lists table looks as shown below:

Allowed List		Denied List	
Location Index	Number	Location Index	Number
1	B	1	B
2	B	2	B
3	B	3	B
4	B	4	B
5	B	5	B

Clear Commands

Command	Meaning
261-Location Index-#*	To clear one location from the allowed list
261-0-#*	To clear all locations from the allowed list
262-Location Index-#*	To clear one location from the denied list
262-0-#*	To clear all locations from the denied list

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Answer Signaling on FXS Port

What's this?

- As a general application the telecom equipment like PCO machine will be connected to the FXS port of the system. Now whenever the called party (remote party) goes OFF-Hook, the caller should know about this, so that the PCO machine can consider the call as matured and start billing. In absence of this signal, the call will never be considered as matured and this shall result in no billing.
- To solve such problems, Answer Signal is generated on FXS port. If during a call from FXS to Mobile, whenever Mobile user goes OFF-Hook (answers), they provide an Answer Signal. This Answer Signal will be generated on the FXS port if any Billing equipment or PCO machine or PBX is connected to the FXS port for considering the call to be matured.

How it works?

- It is applicable for each FXS port only for OG calls made from FXS port.
- When call is made from FXS port to any other port Mobile, system will wait for the port at other end to get matured. For example, Mobile port gets matured when 'CONNECT' Message is detected.
- Answer Signal is generated on the FXS port when call gets matured
- It is in form of None or Battery Reversal as explained below. By default, Answer Signal is set to Polarity Reversal.
 - **None:** It is used when no answer signaling is to be generated on the FXS port.
 - **Polarity Reversal:** It is used when Answer Signal is to be generated in the form of Polarity Reversal on the FXS port. For example, suppose that the polarity of the FXS port is -ve for TIP and +ve for RING in normal condition, after dialing the number. When call gets matured in the system, the Battery polarity of the FXS port will be reversed. Now TIP will become +ve and Ring -ve.

How to program?

Use following command to program the Answer Signal to be generated on FXS port:

221-Answer Signal-#*

Where,

Answer Signal	Meaning
0	None
1	Polarity (Battery) Reversal

By default, Answer Signal to be generated on FXS port is 1.

Relevant Topic:

1. Disconnect Signaling on FXS Port 46

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Automatic Number Translation

What's this?

This feature modifies the number dialed by the user and then dials this new number on the GSM network.

Applications:

- This feature is applicable when the number dialed by the user can not be dialed on the telecom network onto which the call is routed through the SIMADO GFX11.
- It is also used for speed dialing to dial the numbers which are required to be dialed, frequently.

Consider a SIMADO GFX11 that is installed in a PCO

- Suppose that a customer wants to make a call to someone in an adjacent area within same telecom circle (commonly called '95' calls) and the call is to be routed through the GSM network. The customer dials out the number '952668263172'. When the SIMADO GFX11 routes the call through the GSM network, the customer gets an error message because on the GSM network, numbers starting with '95' are invalid. The customer however will be confused because he had dialed the correct number.
- In such a case, with Automatic Number Translation, the string '95' can be replaced with the string '+91' and the number '+912668263172' can be dialed out. The call will go through successfully this time.

Consider a SIMADO GFX11 that is connected to a VoIP Gateway

- The numbers dialed out through the SIMADO GFX11 would then have to be mapped to the numbering scheme of the IP network. This mapping can be done with the help of Automatic Number Translation.

Consider a SIMADO GFX11 installed at the headquarters of an office that has branches in several cities like Mumbai, Delhi, so on.

- Throughout the day several calls might be made from the head office to the branch offices. Each time the user would have to dial lengthy numbers like 022-XXXXXXX for calls to Mumbai or 011-

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YYYYYYYYY for calls to Delhi. This process is both time consuming and error-prone.

- Automatic Number Translation can help the users in this situation by enabling the users to dial only a few digits, while the SIMADO GFX11 translates these few digits to the actual numbers and then dials out these numbers.
- Say, the caller dials '1' for calls to 022-XXXXXXXX and dials '22' for calls to 011-YYYYYYYY, so on. Thus, this feature can be used for 'Phone Book' or 'Abbreviated Dialing', feature.

How it works?

SIMADO GFX11 uses a translation table of maximum 8 entries as shown below:

Index	Dialed String/Sub-string	Substitute String
1		
2		
:		
8		

When the user dials a number, the digits of the dialed number are matched against the number strings in the Dialed-String column. The portion of the user-dialed string that is matched is replaced with the string present in the corresponding row of the Substitute String column.

For example: Suppose that the translation table is programmed in the following manner:

Index	Dialed String/Sub-string	Substitute String
1	95	+91
2		
:		
8		

Now, if the user dials the number 952668263172, the SIMADO GFX11 will compare the number with the dialed-string column. A match would be found in the first row itself because the sub-string

'95' is present in both. So, the SIMADO GFX11 will replace this substring with the number string programmed in the corresponding row in the Substitute-String column. Hence, the number dialed out would be '+912668263172'.

How to program?

Step 1: Program the Dialed String/Substring using command **291**.

Step 2: Program the Substitute String using command **292**.

Step 3: Clear the table using command **290**.

Step 1

Use the following command to program the dialed string/substring:

291-Number Index-Dialed String/Substring-#*

Where,

Number Index is from 1 to 8.

Dialed String/Substring is of maximum 8 digits.

The digits allowed are 0-9.

By default, all the dialed string/substrings are NULL (empty).

Use the following command to clear the dialed string/substring at a given number index:

291-Number Index-#*

Step 2

Use the following command to program the substitute string:

292-Number Index-Substitute String-#*

Where,

Number Index is from 1 to 8.

Substitute String is of maximum 8 digits.

The digits allowed are 0-9, #.

By default, all the Substitute Strings are NULL (empty).

Use the following command to clear the substitute string at a given number index:

292-Number Index-#*

Step 3

Use the following command to clear all the entries of the automatic number translation table:

290-0-#*

Important Points:

- The digit '#' is used in the substitute string for a special purpose. As per the International Numbering Scheme, any number starting with the country code (like 91, for India) must be prefixed with '+'. So, while programming the number the user must take this care. In order to program the symbol '+' in the number, the user should use the string '#1'. So, the number '+91' should be programmed as **#191**.
- The SIMADO GFX11 will replace every occurrence of '#1' with '+' in the number.
- The allowed and denied lists are checked for the dialed number string.

Relevant Topic:

1. Allowed and Denied Lists 27

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Call Duration Display

What's this?

This feature of the SIMADO GFX11 helps to know the duration of calls. The call duration will be displayed on LCD of telephone instrument.

How it works?

The SIMADO GFX11 allows to choose the type of calls for which the duration is required. The system supports to display the call duration for following types of calls:

- Last call.
- Received calls.
- Dialed calls.
- All calls.

How to program?

It is required to get into SE/SA mode prior to the execution of these commands. The user gets a programming tone in the SE/SA mode.

Use the following command to view the duration of the call type desired:

610-Call Type-#*

Where,

Call Type	Meaning
1	Duration of last IC/OC call
2	Duration of all IC calls received on this port
3	Duration of all OC calls made from this port
4	Duration of all IC and OC calls for this port

Use following command to clear all duration timers:

610-0-#*

Important Points:

- The format of display is:

N HH MM SS
XX DUR:HH:MM:SS

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Where,

N is the call type of the programming command issued.

XX is

Value	Meaning
IC	Incoming Call
OC	Outgoing Call
RC	Received Calls
DC	Dialed Calls
AC	All Calls

DUR-Duration

HH-Hours is from 00 to 99.

MM-Minutes in 24 hours format from 00 to 59.

SS-Seconds in 24 hours format from 00 to 59.

Duration is reset to 00:00:00 if the total duration exceeds 99:59:59.

- In case of last call duration display, XX will have either IC or OC thus enabling to determine whether the last call was incoming or outgoing.
- Above configuration works only if FSK CLI is set on the FXS port. But, if DTMF CLI is set on the FXS port, display will be as shown below (only numbers):

N HH MM SS

Relevant Topics:

1. Programming the System through FXS Port 68
2. System Security (Passwords) 80

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Call Divert

What's this?

This feature of the SIMADO GFX11 simulates the Call Divert feature of a mobile handset. This is a facility provided by the Service Provider and must be enabled by the Service Provider. This feature is useful in cases where the SIMADO GFX11 is connected to a PBX. The user can divert all the calls made to the SIMADO GFX11 to his mobile number during after office hours.

How it works?

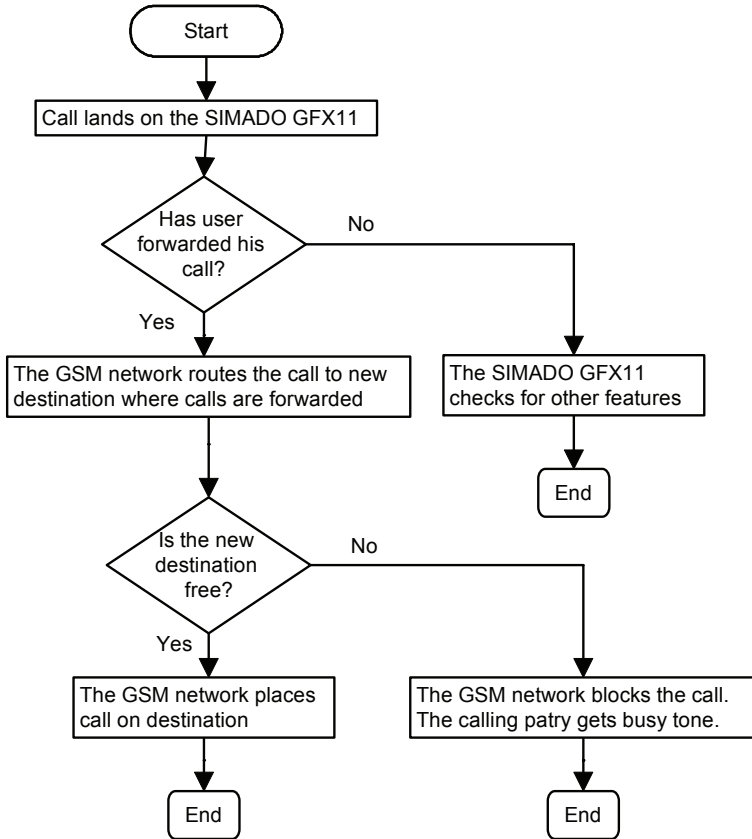
The SIMADO GFX11 offers flexibility to divert the call for the following circumstances.

There are four types of call divert:

1. All calls unconditional.
2. When busy.
3. On No-Reply.
4. The SIMADO GFX11 is OFF or no coverage (Not Reachable).

Following table, explains in detail, for each type selected:

Type	What happens
1	All calls are blindly transferred to new destination
2	Calls are diverted to new destination if the called number (SIMADO GFX11) is busy when the call arrived
3	Calls diverted if the SIMADO GFX11 does not answer the call
4	Calls diverted if the SIMADO GFX11 is off or it is not able to receive the call due to lack of coverage



How to program?

The call divert can be activated from SE/SA mode.

Use following command to set call divert:

620-Option-Code-Destination Number-#*

Where,

Destination number is the new number to which the user wants to divert his calls. The number can be of maximum sixteen digits.

Option	Meaning
1	All calls unconditional
2	On busy
3	If not answered
4	When the SIMADO GFX11 is OFF or no coverage

Code	Meaning
0	Disable call divert
1	Enable call divert

By default, Call Divert Code is 0. If Call Divert feature is to be disabled, do not enter 'Destination Number'.

For example: **620-1-0-#***.

Important Points:

- The Service Provider provides this feature. User can use any of the above call divert option depending on the requirement.
- More than one type of call divert cannot be set simultaneously.

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Call Progress Tones

What's this?

The SIMADO GFX11 gives different types of tones to indicate the progress of a call/user-activity. These tones are called Call Progress Tones.

The SIMADO GFX11 supports following tones for each tone type:

- Dial Tone.
- Error Tone.
- Busy Tone.
- Programming Tone.
- Confirmation Tone.

The tones are explained as below:

Dial Tone

This tone is given when the FXS port of the SIMADO GFX11 goes OFF-Hook. This is a prompt for the user to start dialing. This tone lasts for 15 seconds after which the user gets Error Tone.

Error Tone

This is given when the user performs some invalid operation or some denied access. This tone is also given after dial tone, if the user does not dial anything till the end of dial tone duration. In the programming mode, this tone remains for 3 seconds after which the programming tone is again started. In the feature access mode or when this tone is given after the dial tone, this tone remains till the user again goes ON-Hook. User gets 'Error Tone' in following events of incoming call.

Incoming Call:

- When user is trying to dial an outgoing number and receives IC call, then out dialing is ignored and user will get 'Error Tone'.
- User will get 'ring', when he is ON-Hook and gets incoming call.

Busy Tone

When a call is made by SIMADO GFX11 and it gets response for busy, caller gets busy tone.

Programming Tone

This tone is given in the system programming mode when the SIMADO GFX11 is waiting for a new command from the user. This tone remains till the user dials the first digit of a new command.

Confirmation Tone

This tone is given as continuous, fast beeps to indicate that the SIMADO GFX11 has successfully executed a feature command/ programming command issued by the user. This is also called the Programming Confirmation Tone. This tone remains for 3 seconds in the programming mode and in the feature access mode it remains till the user goes ON-Hook.

How it works?

- Different country follows different standard of frequency and cadence of the tones, known as 'Tone Type'.
- This Matrix product supports 33 tone types for 33 countries in all.
- Refer the table at the end of chapter for the details on cadence data for different country.
- Just program code for the tone type, to select the country specific tones.

How to program?

By programming 'Code', the GFX11 supports Call Progress Tone for that country, where it is installed.

Use the following command to select the country for tone type:

104-Code-#*

Where,

Code	Country	Dial Tone		Busy Tone		Error Tone	
		Freq.	Cadence	Freq.	Cadence	Freq.	Cadence
		Hz	second	Hz	second	Hz	second
01	Australia	425*25	cont.	425	0.375on 0.375off	425	0.375on 0.375off
02	Argentina	425	cont.	425	0.3on 0.2off	425	0.3on 0.4off
03	Belgium	425	cont.	425	0.5on 0.5off	425	0.167on 0.167off
04	Brazil	425	cont.	425	0.25on 0.25off	425	0.25on 0.25 off
05	China	450	cont	450	0.35 on 0.36off	450	0.7on 0.7off
06	Egypt	425*50	cont	425*50	1.0on 4.0off	450	0.5on 0.5off
07	France	440	cont	440	0.5on 0.5off	440	0.25on 0.25off
08	Germany	425	cont	425	0.48on 0.48off	425	0.24on 0.24off
09	Greece	425	0.2on 0.3off 0.7on 0.8off	425	0.3on 0.3off	425	0.15on 0.15off

Matrix

Code	Country	Dial Tone		Busy Tone		Error Tone	
		Freq.	Cadence	Freq.	Cadence	Freq.	Cadence
		Hz	second	Hz	second	Hz	second
10	India	400*25	cont	400	0.75on 0.75off	400	0.25on 0.25off
11	Indonesia	425	cont.	425	0.5on 0.5off	425	0.25on 0.25off
12	Iran	425	cont	425	0.5on 0.5off	425	0.25on 0.25off
13	Israel	400	cont	400	0.5on 0.5off	400	0.25on 0.25off
14	Italy	425	cont.	425	0.5on 0.5off	425	0.2on 0.2off
15	Japan	400	cont	400	0.5on 0.5off	400	0.25on 0.25off
16	Kenya	425	cont	425	0.2on 0.6off 0.2on 0.6off	425	0.2on 0.6off
17	Korea	350+440	cont	480+620	0.5on 0.5off	480+620	0.3on 0.2off
18	Malaysia	425	cont	425	0.5on 0.5off	425	0.5on 0.25off
19	Mexico	425	cont.	425	0.25on 0.25off	425	0.25on 0.25off
20	New Zealand	400	cont.	400	0.5on 0.5off	400	0.25on 0.25off
21	Philippines	425	cont.	480+620	0.5on 0.5off	480+620	0.25on 0.25off
22	Poland	425	cont.	425	0.5on 0.5off	425	0.5on 0.5off
23	Portugal	425	cont.	425	0.5on 0.5off	450	0.33on 1.0off
24	Russia	425	cont.	425	0.4on 0.4off	425	0.25on 0.25off
25	Saudi Arabia	425	cont.	425	0.5on 0.5off	425	0.25on 0.25off
26	Singapore	425	cont.	425	0.75on 0.75off	425	0.25on 0.25off
27	South Africa	400*33	cont.	400	0.5on 0.5off	400	0.25on 0.25off
28	Spain	425	cont.	425	0.2on 0.2off	425	0.25on 0.25off
29	Thailand	400*50	cont.	400	0.5on 0.5off	400	0.3on 0.3off
30	Turkey	450	cont.	450	0.5on 0.5off	450	0.2on 0.2off 0.6on 0.2off
31	UAE	350+440	cont.	400	0.375on 0.375off	400	0.4on 0.35off 0.225on 0.525off
32	UK	350+440	cont.	400	0.375on 0.375off	400	0.4on 0.35off 0.225on 0.525off
33	USA/Canada	350+440	cont.	480+620	0.5on 0.5off	480+620	0.25on 0.25off

By default, Tone Type is 10 (India).

Important Point:

- f1*f2 means that f1 is modulated by f2.

For All Countries

Confirmation Tone : 400Hz, 0.1 on 0.1 off,

Programming Tone : 400Hz, 0.1 on 0.9 off,

Relevant Topic:

1. Distinctive Rings 48

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Calling Line Identification and Presentation (CLIP)

What's this?

The SIMADO GFX11 provides the facility to detect the calling party number and present it to the FXS port. This is called Calling Line Identification and Presentation. The calling party number is displayed on LCD of the telephone instrument.

The FXS port of the SIMADO GFX11 supports two CLI protocols viz. DTMF and FSK. Hence telephone instrument-supporting DTMF signalling or FSK signalling can be interfaced with the SIMADO GFX11.

How it works?

The SIMADO GFX11 senses the CLI received from the network and sends this information to the FXS port along with the ringing signal. The FXS port supports any of the 3 types of signalling viz. DTMF signalling, ITU-T V.23 FSK and Bellcore FSK. Depending on the telephone instrument type the FXS port should be programmed.

How to program?

Program the signalling type of the FXS port. Please refer to 'FXS Port Parameters' for more details.

Relevant Topics:

1. Calling Line Identification Restriction (CLIR) 44
2. FXS Port Parameters 53

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Calling Line Identification Restriction (CLIR)

What's this?

The SIMADO GFX11 supports the facility of the GSM network by which the user can keep his identity secret when he calls other party. This is known as Calling Line Identification Restriction (CLIR).

How it works?

- The CLIR can be enabled/disabled on GSM port. If CLIR is enabled the identity of the caller will not be revealed to the called party. If CLIR is disabled identity of the caller is revealed to the called party.

By default, CLIR is disabled.

How to program?

Step 1

Get the CLIR facility enabled from the Service Provider.

Step 2

Enable/Disable CLIR on the GSM port. Please refer to '[GSM Port Parameters](#)' for more details.

Important Point:

- Some networks do not allow OG Calls when CLIR is activated.

Relevant Topics:

1. [Calling Line Identification and Presentation \(CLIP\)](#) 43
2. [GSM Port Parameters](#) 55

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Default the Configuration

What's this?

Every system comes with a pre-defined set of variables and parameters. These pre-defined settings are called default settings. The default value of each programmable parameter is mentioned in respective section. If the default settings and values suit your requirements then there is no need to program the system and system will work according to the default settings.

How to use it?

Suppose the SE has programmed the system and changed the values of parameters as required. Unfortunately the system does not function as expected. Tracking the mistake may become difficult and time consuming. In such cases the command to default the configuration can be issued, which shall assign the default values to all the programmable variables.

How to program?

Use following command to load the default configuration:

106-Reverse SE Password-#*

Reverse SE Password is a number string of maximum 4 digits.

By default, SE Password is 1234. Hence, Reverse SE password in such case will be 4321.

Important Points:

- Please note that, this feature will not default the values of parameters enabled/disabled by the Service Provider like CLIR, Call Divert, SIM enable/disable, Call Progress Tones, Distinctive Rings, etc.
- On giving this command, system restarts.

Relevant Topics:

1. Programming the System through FXS Port 68
2. System Security (Passwords) 80

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Disconnect Signaling on FXS Port

What's this?

- As a general application, telecom equipment like PCO machine is connected to the FXS port of the gateway. It is required to inform the FXS port whenever the called party (remote party) disconnects or goes on-hook so that the PCO machine can consider the call as complete and stop billing. In absence of this signal, the call is considered as complete when the caller goes ON-Hook. This will result in inaccurate billing.
- To avoid such problems, disconnect signal is generated on the FXS port, if called party disconnects or goes ON-Hook (disconnects). This is called 'Disconnect Signaling on FXS port'.

How it works?

- This parameter is applicable only for FXS port for both incoming and outgoing calls.
- If other port or called party gets disconnected, the system will check the Disconnect Signal programmed for the FXS port. For example, Mobile port gets disconnected if 'DISCONNECT' message is detected.
- This parameter can be set for either one of the following options:
 - **None:** It can be used when no signaling is to be generated on the FXS port. No disconnect signal will be generated on the FXS port.
 - **Polarity Reversal:** It can be used when call disconnection is to be signaled in the form of Polarity Reversal. For example, the battery polarity of the FXS port is +ve for TIP and -ve for RING in speech condition. Now when call gets disconnected in the system, the Battery polarity of the FXS port will be reversed. Now TIP will become -ve and Ring +ve i.e its normal condition when user goes Off hook.
 - **Open Loop Disconnect:** It can be used when call disconnection is to be signaled in the form of Open Loop Disconnect pulse. This signal is generated by removing the Battery (Current) voltage on FXS port for the period of Open Loop Disconnect Timer and then restoring it again. It is also programmable. Thus the Polarity of the FXS port battery voltage is not changed.

- User will get Error tone after disconnect signal is generated on the FXS port.

How to program?

Use following command to program the signal to be generated as Disconnect Signal on FXS port:

248-Disconnect Signal-#*

Where,

Disconnect Signal	Meaning
0	None
1	Polarity(Battery) Reversal
2	Open Loop Disconnect (Battery Removal or Current Removal)

By default, Disconnect signal on FXS port is 1.

Use following command to program the Open Loop Disconnect timer on FXS port:

249-Open Loop Disconnect Timer-#*

Where,

Open Loop Disconnect Timer is from 001 to 999 ms.

By default, Open Loop Disconnection Timer is 500ms.

Relevant Topic:

1. [Answer Signaling on FXS Port](#) 29

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Distinctive Rings

What's this?

- The Matrix GFX11 supports different frequency and cadence for the ring when incoming call lands on FXS port.
- These cadence is as per standardization for different country. For example:
 - India supports: 25Hz, 0.4 ON-0.2 OFF, 0.4 ON-2.0 OFF (sec.)
 - USA/Canada supports: 25Hz, 2.0 ON-4.0 OFF (sec.)
- This is known as Distinctive Ring feature.

How it works?

- User has to program the name of the country where GFX11 is installed.
- The system will select automatically the frequency and cadence as per the table given at the end of chapter.

How to program?

Use the following command to select the country for ring type of incoming call:

311-Code-#*

Where,

Code	Country	Frequency (Hz)	CADENCE (In Seconds)			
			TON1	TOFF1	TON2	TOFF2
01	Australia	25	0.4	0.2	0.4	2.0
02	Belgium	25	1.0	3.0		
03	Brazil	25	1.0	4.0		
04	China	25	1.0	3.0		
05	Egypt	25	2.0	4.0		
06	France	25	1.5	3.5		
07	Germany	25	3.5	5.5	0.79	1.1
08	Greece	25	1.0	4.0		
09	India	25	0.4	0.2	0.4	2.0
10	Israel	25	2.0	3.0		
11	Italy	25	1.0	4.0		
12	Japan	25	1.0	2.0		
13	Korea	25	1.0	3.0		
14	Malaysia	25	2.0	3.0		
15	New Zealand	25	2.0	3.0		
16	Poland	25	2.0	3.0		
17	Portugal	25	1.0	5.0		
18	Russia	25	1.0	3.0		
19	Singapore	25	0.4	0.2	0.4	2.0
20	South Africa	25	0.4	0.2	0.4	2.0
21	Spain	25	1.5	3.0		
22	Thailand	25	2.0	3.0		
23	UAE	25	2.0	3.0		
24	UK	25	0.4	0.2	0.4	2.0
25	USA/Canada	25	2.0	4.0		

By default, Ring Type of Incoming call is 09 (India).

Note:

- Waveform for the ring is Sine Wave.

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Emergency Number Dialing

What's this?

The user should be able to contact service personnel like Fire Brigade, Ambulance, etc. from GSM network, where he is facing some adverse situation and needs some help. This is known as 'Emergency Number Dialing'. SIMADO GFX11 supports this feature. For GSM network, it may happen that you need to call emergency number even when you have not inserted the SIM card and the module is not registered with the network. This is called 'False' status of the GSM port. Normally SIM card is inserted and the module is registered with the network. This is called 'True' status of the GSM port. SIMADO GFX11, supports the emergency dialing feature for both status of GSM port, just like a mobile handset.

How it works?

- The system supports 4 programmable numbers, which are used as emergency numbers for dialing. Each number is of 4 digits maximum.
- The dialed number is compared with numbers programmed in the emergency number table. If it matches by perfect fit logic then the number is dialed out from the mobile port.
- The system doesn't check the Allowed and Denied Lists or Automatic Number Translation, for dialing the emergency number, but the GSM port must be enabled.
- Emergency dial in GSM network is explained in detail as below:
 - A Mobile station has two intelligent systems within itself viz. the GSM Engine and the SIM card.
 - Both, the GSM engine and the SIM card classify few number strings as Emergency numbers. Such numbers are dialed by the module with a specific SET UP message known as Emergency Call Set Up message.
 - These numbers are dialed by the GSM Engine in following cases:
 - Not registered with subscribed Service Providers' Network. In such case, the Engine dials the Emergency number using any other available GSM network.
 - When SIM is absent.

-
- When SIM is invalid (Only few Emergency numbers are allowed. This depends on the GSM Engine).
 - When SIM is blocked.
 - When wrong SIM PIN is entered.

For example, for a specific GSM Engine and a SIM Card from a Service Provider, following sequence is followed to dial an Emergency Number:

- It will first search for emergency call number stored in the SIM phone book. If there is at least one emergency number in the SIM, it will search for the number. If does not match, it will search for 112 or 911.
- If SIM does not have any emergency number stored it will search for the number in the default emergency number list stored in the firmware which are 000, 08, 112, 110, 911, 999.
- If the SIM is invalid means either PUK1 Blocked or PUK2 Blocked or No SIM, it will search for emergency numbers, which are 000, 08, 112, 110, 911, 999, 118 and 119.
- If SIM is blocked means either PIN1 Blocked (PUK1 Requested) or PIN2 Blocked (PUK2 requested) valid emergency numbers are 000, 08, 112, 110, 911, 999.
- If SIM is not inserted 000, 08, 112, 110, 911, 999, 118 and 119 are considered as emergency numbers.
- If wrong PIN is entered 000, 08, 112, 110, 911, 999 are considered as emergency numbers.

How to program?

Use the following command to program the emergency number in the table:

151-Index-Emergency Number-#*

Where,

Index is from 1 to 4.

Emergency Number is 4 digits maximum.

Use the following command to clear the emergency number at an index:

151-Index-#*

Matrix

The default, emergency number table programmed in the system looks as shown below:

Index	Emergency Number
1	112
2	911
3	Null
4	Null

Example:

Suppose an emergency number 999 and 110 is required to be dialed out then program the table using commands:

151-1-999-#* (Program Emergency Number 999)

151-2-110-#* (Program Emergency Number 110)

Important Points:

- The GSM port from where, the emergency number is to, be dialed should be enabled, even if it is 'False'.
- The number programmed, which are to be dialed through GSM port as emergency number should exist as emergency number either in the GSM module or in the SIM in the memory storage, which is classified as emergency number. For this information, contact your GSM Service Provider.

Relevant Topic:

1. GSM Port Parameters 55

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FXS Port Parameters

What's this?

- The SIMADO GFX11 offers the flexibility to program the Inter Digit Wait Timer and the CLI type for the FXS port. Few parameters are programmed to get the expected functions from the system, as explained below:
- **CLI type**
The FXS port supports the following three types of CLI signalling:
 - DTMF.
 - ITU-T V.23 FSK.
 - Bellcore FSK.
- **Replacing '+' by digits in CLI:**
 - Matrix GFX11 supports to replace '+' of the CLI number, with some other digits. Normally it is the prefix for international dialing.
 - On receipt of call on Mobile port, if the first digit in CLI is '+', it is replaced with the programmable digits and is presented on the FXS port.
 - If first digit is not '+', the same CLI is presented on the FXS port.
 - Maximum of four digits can be replaced with '+'.

Example:

- On receipt of call on GSM port, if calling party number provided by network is +91 265 2630555, system will eliminate the string '+' and an International dialing prefix ('00' if used in India) which is programmed, will be added in the number string so that the number can be processed by the network.

How to program?

Step 1: Program CLI type using command **222**.

Step 2: Program the digit which will be replaced with '+' in CLI using command **301**.

Step 3: Program inter digit wait timer using command **226**.

Step 1

Use following command to program the CLI type for the FXS port:

222-CLI Type-#*

Where,

CLI Type	Meaning
1	None
2	DTMF
3	ITU-T V.23 FSK
4	Bellcore FSK

By default, CLI type is 3.

Step 2

Use the following command to program the digits which will be replaced with '+' in the CLI:

301-Number String-#*

Where,

Number String is maximum of four digits

By default, Number String is '00'.

Use the following command to clear the digits programmed:

301-#*

Step 3

Inter digit Wait Timer: The system will dial out the number received from the user, after expiry of Inter Digit Wait Timer. This parameter helps to reduce the delay of dialing out the number, after digits are entered.

Use the following command to program the Inter Digit Wait Timer:

226-Inter Digit Wait Timer-#*

Where,

Inter Digit Wait Timer is from 01 to 99 seconds.

By default, Inter Digit Wait Timer is 05 seconds.

Important Points:

- Flash Timer is fixed, 600ms for ON-Hook detection.
- End of dialing is a mechanism by which end of number string is interpreted by the system and processing for out dialing is faster.
By default, '#' is considered as end of dialing digit.

Relevant Topic:

1. CLIP 43

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GSM Port Parameters

What's this?

- In order to interface with GSM network, the GSM port of SIMADO GFX11 can be enabled/disabled, programmed for CLIR, enabled/disabled for SMS notification, etc.
- This chapter explains which parameters are required to be programmed for the GSM port.
- For frequency band selection, refer chapter [Network Selection](#).

How to program?

GSM port parameters can be programmed in the following hierarchy:

Step 1: Enable/Disable the GSM port using the command **201**.

Step 2: Program the CLIR mode using command **202**.

Step 3: Enable/Disable the incoming SMS indication using the command **203**.

Step 4: Enable/Disable the Location Information Indication using command **205**.

Step 5: Program the receive gain using the command **271**.

Step 6: Program the transmit gain using the command **272**.

Step 1

GSM Port Enable/Disable

The GSM port can individually be enabled or disabled.

Use the following command to enable/disable the GSM port:

201-Code-#*

Where,

Code	Meaning
0	Disable
1	Enable

By default, the GSM port is enabled. When the GSM port is disabled, it is still possible to receive incoming calls.

Step 2

Enable/Disable the CLIR on the GSM port

The CLIR on the GSM port can be enabled/disabled.

Matrix

Use the following command to enable/disable the CLIR on the GSM port:

202-Mode-#*

Where,

Mode	Meaning
0	Disable
1	Enable

By default, CLIR is disabled.

Prior to enabling/disabling CLIR on GSM port, CLIR should be enabled by the Service Provider.

Step 3

Enable/Disable the notification of incoming SMS

The GSM port can be programmed to notify the receipt of SMS. Use the following command to enable/disable the notification of incoming SMS:

203-Flag-#*

Where,

Mode	Meaning
0	Disable
1	Enable

By default, the notification of the incoming SMS is disabled.

Step 4

Enable/Disable Location Information Indication

The GSM port can be programmed to notify the current location information to the user.

Use the following command to enable/disable the Location Information Indication on the GSM port:

205-Flag-#*

Where,

Flag	Meaning
0	OFF
1	ON

By default, the Location Information Indication is OFF.

Step 5

Receive Gain

The GSM port provides a facility to adjust the receive gain. This enables the user to increase the audibility of incoming speech.

Use the following command to program the receive gain of the GSM port:

271-Receive Gain-#*

Where,

Receive Gain range from 1-5. Where, 1 is minimum and 5 is maximum Gain.

Receive Gain	Meaning
1	Very Low
2	Low
3	Normal
4	High
5	Very High

By default, the Receive Gain is 3.

Use the following command to default the Receive Gain at the GSM port:

271-0-#*

Step 6

Transmit Gain

The GSM port provides a facility to adjust the transmit gain. This enables the user to adjust the right intensity for the transmitted signal.

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Use the following command to program the transmit gain of the GSM port:

272-Transmit Gain-#*

Where,

Transmit Gain range from 1-5. Where, 1 is minimum and 5 is maximum gain.

Transmit Gain	Meaning
1	Very Low
2	Low
3	Normal
4	High
5	Very High

By default, the Transmit Gain is 3.

Use the following command to assign default value of the Transmit Gain at the GSM port:

272-0-#*

Important Point:

- The actual dB values of Rx and Tx gain sent to GSM engine depends on the type of GSM engine connected.

Relevant Topics:

1. SMS 76
2. Calling Line Identification Restriction 44
3. Location Information Indication 63
4. Network Selection 64

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Hotline

What's this?

Matrix system offers, a feature by which the user has to just pick up his handset and the system will automatically dial out the fixed destination number. This feature is called Hotline.

How it works?

- When the Hotline is enabled, lifting the handset gives the regular dial tone. If the user does not dial anything for a time period of Hotline Delay Timer, SIMADO GFX11 places the Hotline call to the programmed number.
- This delay provides a facility to the user to dial out other numbers without canceling Hotline.

How to program?

Use the following command to enable/disable Hotline:

281-Flag-#*

Where,

Flag	Meaning
0	Disable
1	Enable

By default, the Hotline is Disabled.

Use the following command to program the hotline destination number:

282-Destination Number-#*

Destination Number is number string of maximum 16 characters.

Use the following command to set the hotline delay timer:

283-Timer-#*

Where,

Timer is from 1 to 9 sec.

By default, Hotline Delay Timer is 3 seconds.

Example:

Activate Hotline and program the external number 0265 630555 as

Matrix

the hotline number. Provide a delay timer of 5 secs.

Dial following codes to set the feature:

281-1-#*

282-0265630555-#*

283-5-#*

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International Mobile Equipment Identity (IMEI)

What' this?

- It may happen your unit GFX11 is misplaced or stolen. Very important personal information is stored and you donot want somebody to misuse it. To help the user, manufacturer of GSM Module provides a code known as International Mobile Equipment Identity (IMEI) which can be sent to the network operator. The operator will use it to put your GSM module of the specific GFX11, in unoperational state. Thus, the IMEI code is used to identify an individual GSM Module. The IMEI number is normally printed on the GSM Module.
- The International Mobile Equipment Identity (IMEI) Code is an unique 15-digit code used to identify an individual GSM phone to a GSM network. When a phone is switched ON, the IMEI code is transmitted and checked against a database in the network's EIR (Equipment Identity Register).
- The network's Equipment Identity Register defines three registers known as "white list", "gray list" and "black list".
- The 'white list' consists of all equipment identities that are permitted to use the network. The 'black list' contains all equipment identities that are barred from using the network (when a phone is reported stolen or is not type approved). Equipment on the 'gray list' are not barred from using the network services but are tracked by the network (for evaluation or other purposes.)

How to use it?

Use the following command to know the IMEI Code of the GSM Phone:

#*-13

Important Points:

- After giving this command, the user gets a confirmation tone. After this the user has to go ON-Hook. The IMEI Code is displayed on the LCD of telephone instrument. The format of display is **NNNNNNNNNNNNNNNN**.
- ***The parts of the 15 digit IMEI code are:***

Matrix

NNNNNNNN NNNNNN N
TAC SNR CD

- The first eight digits of the IMEI form the TAC (Type Approval Code). This code identifies the country in which type approval was sought for the phone, as well as the approval number. TAC is also abbreviation for Type Allocation Code.
- The SNR (Serial Number) is the next six digit code, which has been uniquely assigned to the specific type of handset.
- The CD (Check Digit) is a single digit used to check the IMEI for its validity.
- IMEI can be displayed on SLT irrespective of the CLI type programmed on FXS port.

Relevant Topics:

1. FXS Port Parameters 53
2. GSM Port Parameters 55

=X=X=

Location Information Indication

What's this?

This is a feature provided by the Service Provider. It must be enabled by the Service Provider. If enabled, the SIMADO GFX11 gives the information of the 'Location' where it is installed. The GSM network updates the current Location Information when the phone is registered in a different location.

How to use it?

Step 1

Get the feature enabled from the Service Provider.

Step 2

Enable the feature using command mentioned in chapter GSM Port Parameters.

Step 3

Use the following command to know the Location Information:

#*-12

Important Points:

- After giving this command, the user gets a confirmation tone. After this the user has to go ON-Hook. The location Information is obtained on the LCD of telephone instrument.
- In case information is not available from network, on issuing the command the SIMADO GFX11 will display "**NO LOCATION**".
- The FXS port should be in FSK CLI mode for display. Otherwise the phone will not display the information about 'Location' and user will get error tone.

Relevant Topics:

1. GSM Port Parameters 55
2. FXS Port Parameters 53

=X=X=

Network Selection

What's this?

- Many times it happens that the system is installed in a remote place which is hilly or at a place where it is surrounded by multistoreyed buildings. In such case, the mobile user may not get registered with a suitable network and his work is affected. Same problem is faced when he is moving out of his home region. User of mobile station (Handset) has the user interface on the LCD, which shows, the name of the available network and he can select the desired network. But such user interface is not available in the SIMADO GFX11. The same purpose is served by providing multiple network operator options based on their specific network operator code. The subscriber can select the network manually or automatically, for each mobile port. This is known as Network Selection.
- If the subscriber is working in the area where, his home network as well as other network coverage is also available, then he can select the network manually such that he can restrict the extra charges. Normally subscriber uses this mode when he is working outside his home network.
- But if the subscriber is always busy with important business matter, then he would like to get registered with any network operator. He wants to make and receive calls, at any cost. For such requirement he will use this feature, in Automatic Mode.
- User can select the frequency for SIMADO GFX11 as supported by the country.

How it works?

- User can assign option for network selection, which will be applicable for the GSM port.
- The feature works, when SIMADO GFX11 is powered ON or if the port is NOT registered with network.
- Maximum 4 network operators can be programmed. In manual mode mobile port starts to get registered with network operator, as per order of programming with its network operator code. In Automatic Mode, the GSM port gets registered with the network operator as per field strength. If it doesn't get registered till expiry

of network registration retry timer, it starts again the process of network selection.

- User should know the inter network call charges while programming priority network operator codes, for manual mode operation.
- Network operator code, consists of MCC and MNC. MCC is Mobile Country Code, which identifies a country. For a country, there can be more than one MCC. It is generally of 3 digits. For e.g. for India, MCC is 404, which is same for all networks in India. MNC is Mobile Network Code, which is same for all network operators in India. But it is different in each state for the same network operator. For e.g. Airtel-Gujarat, MNC is '98' and Airtel Maharastra, MNC is '90'. Thus, MCC-MNC combination uniquely identifies the home network of the mobile terminal. For example, MCC for other countries are as shown below:

- USA : 310
- Canada : 302
- Australia : 505
- Italy : 222

How to program?

Step 1: To select network selection mode manual or automatic using command **331**.

Step 2: To program network operator's code with priority using command **332**.

Step 3: To select GSM Frequency Band using command **333**.

Step 1

Use the following command to program network selection mode for the GSM port:

331-Network Selection Mode-#*

Where,

Mode	Meaning
1	Automatic
2	Manual

By default, Network Selection Mode is 1.

Step 2

Use the following command to program the network operator's code with priority:

332-Priority-Code-#*

Where,

Priority is from 1 to 4.

Code = MCC-MNC is of maximum 5 digits.

By default, Network Operator Code is Blank.

The default priority table, programmed in the system will be as shown below:

Priority	Network Operator Code
1	Blank
2	Blank
3	Blank
4	Blank

Use the following command to clear network operator code:

332-Priority-#*

Step 3

Use following command for selection of GSM Frequency Band:

333-GSM Frequency Band-#*

Where,

GSM Frequency Band	Meaning
1	900
2	1800
3	1900
4	850 + 1900
5	900 + 1800

By default, GSM Frequency Band should be '900 + 1800'.

Example 1:

- You can program '850 + 1900' GSM frequency band for countries which support both 850 and 1900 MHz frequency bands for the GSM network.

Example 2:

A user feels call charges of network operator 'X' (MCC 404, MNC 98), will be the cheapest for his SIM card of home region. Second operator 'Y' (MCC 404, MNC 25) is cheaper, but the third operator 'Z' (MCC 404, MNC 21) is little cheap for call charges. Then program the network operator as per priority, as shown below:

He should program the SIMADO GFX11, for manual mode which doesn't depend on field strength of the network.

331-2-#* (Network selection mode: Manual)

332-1-40498-#* (1st priority to network 'X')

332-2-40425-#* (2nd priority to network 'Y')

332-3-40421-#* (3rd priority to network 'Z')

Important Point:

- In manual mode, network is not selected as per the field strength but is selected as per the priority network codes.

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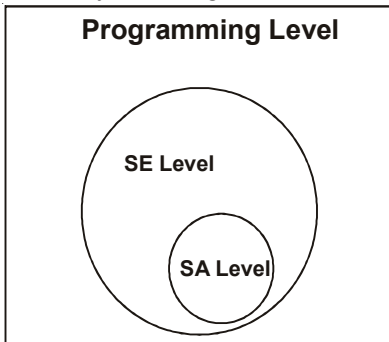
Programming the System through FXS Port

What's this?

The SIMADO GFX11 is a flexible system and can be programmed to suit your requirements. The SIMADO GFX11 can be programmed by entering into programming mode. Programming can be done at two levels viz. System Engineer Level and System Administrator Level.

System Engineer Level

- At this level, System Engineer does the programming and it is called System Engineer Mode.



- System Engineer(SE) is a person who programs the system as per the need.
- This mode allows the SE to program the system for basic functions like programming through FXS etc.
- This mode is password protected so that no other person can make any unauthorized alterations and subsequent misuse of features and facilities. The password is called SE Password.
- Default SE Password is 1234.
- In case the SE Password is forgotten, the same can be reset to its default value by changing the jumper position (J2). For more details, please refer section 'System Security (Passwords)'.

System Administrator Level

- At this level, System Administrator does the programming. This is called System Administrator(SA) Mode.

- As the name suggests, only housekeeping functions required for administration purpose can be done from this mode. Only the programming commands for the following features are possible from SA Mode:
 - Change SA Password.
 - Display Software Version-Revision.
 - Display Call Duration.
 - Call Divert.
- This mode is password protected so that no other person can make any unauthorized alterations and subsequent misuse of features and facilities. The password is called SA Password.
- Default SA Password is 1111.
- In case the SA Password is forgotten, the same can be changed from SE mode. For more details, please refer section '[System Security \(Passwords\)](#)'.

How to use it?

Enter SE Mode

1	Lift handset.	Dial tone
2	Dial #*-19-SE Password.	Programming tone

Enter SA Mode

1	Lift handset.	Dial tone
2	Dial #*-18-SA Password.	Programming tone

In both the cases on issue of invalid password user will get error tone. The error tone will be stopped only by going ON-Hook.

Important Points:

- Password is 4-digits secret code used to avoid unauthorized access to programming mode.
- Password is programmable. We can change the password as per the requirement.
- In case the password is forgotten, the same can be set to its default value by defaulting the system.
- System gives programming tone on entering programming mode.
- If the password is not entered correctly, system gives error tone.

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- Only one person can enter programming mode at a time.
- If both the SE/SA password happen to be the same the user is always logged on as SE.
- During programming three types of tones are used.
 - Error tone.
 - Confirmation tone.
 - Programming tone.
- Each valid command is confirmed with confirmation tone.
- Each invalid command generates an error tone.
- In both the cases after tone period expires (3 seconds) user will get programming tone for the next command.
- During programming if there is an incoming call the user gets an 'Error Tone' and the user is automatically out of the programming mode.
- During programming mode if there is an incoming message 'NO Indication' is given.
- To exit programming mode dial '**00-#***' from the programming tone. You get the SIMADO GFX11 dial tone.
- If the response of the command is expected on display, the user has to go ON-Hook after the confirmation tone. Once the information is displayed the user has to go OFF-Hook and he will get the programming tone.

Relevant Topics:

1. System Security (Passwords) 80
2. Call Progress Tones 40

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Restart the System

What's this?

The Matrix SIMADO GFX11 supports a command from the programming mode to restart the system. This command gives same effect as switching OFF the system and switching it ON again. Many times it is difficult to physically walk to the system and restart it. It is convenient if we could do the same from telephone instrument. The SIMADO GFX11 offers facility to restart the system by dialing a code.

How to use it?

Use following command to restart the system:

105-SE Password-#*

Where,

SE Password is a number string of 4-digits.

Important Points:

- Restart the system is same as switching it OFF and ON again. This command does not alter any programming parameters.
- This password is also used to enter into programming mode.

Relevant Topic:

1. System Security (Passwords) 80

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Signal Strength

What's this?

The SIMADO GFX11 gives the indication of signal strength available for communication. Thus the possibility of network availability can be found. This information is important when user is dialing a number/receiving a call.

How to use it?

Use following command to know the signal strength:

#*-11

Important Points:

- After giving this command, the user gets a confirmation Tone. After this the user has to go ON-Hook. The signal strength indication will be obtained on LCD of telephone instrument.

- The format of display is:

11111111111
Strength: -XXdBm

Example:

- Network strength is high:

11111111111
Strength: -63dBm

- Network strength is low:

11111
Strength: -101dBm

- Network Absent:

Not Available

Thus, the numbers will indicate the strength of network. After the display the user has to go OFF-Hook. The user again gets a programming tone.

- The outgoing calls should be made when the available network strength is high or maximum.
- Above configuration works only if FSK CLI is set on the FXS port. But, if DTMF CLI is set on the FXS port, display will be as shown

below (only numbers):

11111

Relevant Topic:

1. FXS Port Parameters 53

=X=X=

SIM PIN

What's this?

Subscriber Identification Module (SIM) is a removable plastic card and contains an integrated IC chip with a microprocessor, RAM and ROM. The SIM is a smart card containing all subscriber specific data stored in it. A programmed (default) PIN (Personal Identification Number) is stored on the SIM.

How to program?

SIM PIN request:

Use following command to enable/disable SIM PIN request on power ON:

111-Code-SIM PIN-#*

Where,

SIM PIN is maximum 4 digit number string.

Code	Meaning
0	Disable SIM PIN request
1	Enable SIM PIN request

By default, SIM PIN request on power ON is disabled.

Registering SIM:

Use following command to register the SIM:

112-SIM PIN-#*

Where,

SIM PIN is a 4-digits number of SIM Card used. Initially, it has default value. The user can change it, if and when required.

Changing SIM PIN:

Use following command to change the SIM PIN:

113-Old SIM PIN-New SIM PIN-#*

Where,

Old SIM PIN is a 4-digits PIN of SIM Card used.

New SIM PIN is the new PIN number the user wants to assign to the SIM card.

Register Personal Unlock Key of the SIM

If the SIM PIN request is enabled, everytime you switch ON the SIMADO GFX11 it will display the message to enter the PIN number on the phone. User needs to enter PIN. If incorrect PIN is entered thrice in a row, the SIM card gets blocked and the SIMADO GFX11 will ask for the PUK (Personal Unlock Number). This PUK is received from the customer care of the Service Provider. This is permanently assigned to each user. If the PUK is entered wrongly for 10 times, the SIM card will be of no use.

Use following command to register Personal Unlock key:

114-PUK Number-SIM PIN-#*

Where,

PUK number is an 8-digits number assigned to the SIM card.

SIM PIN is a 4-digits number of SIM Card used.

Relevant Topic:

1. Getting Started 17

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SMS (Short Message Service)

What's this?

- The SIMADO GFX11 supports Short Message Services (SMS) feature.
- It allows receiving of messages.
- Receipt of a SMS by the SIMADO GFX11 is indicated to the user on the telephone instrument.

How it works?

- The messages (SMS) that are received are stored at various locations in the memory of the SIM card. These locations are referred to as indexes. These messages can be read on a FSK type telephone instrument.
- More than one SMS can be received at a time.
- The indication of a new message is given in form of a signal or alert on the phone.

How to use it?

To use this feature it should be enabled using command mentioned in the chapter 'GSM Port Parameters'.

Reading the received messages from the telephone instrument

Lift the handset.	Dial tone
Dial #*-21-Index .	Confirmation tone
Replace the handset.	You get ring followed by first 15 characters of the message received.
	Again you get ring followed by next 15 characters of the message received. This continues till the message is completed.
If you go OFF-Hook during SMS retrieving process.	SMS retrieval is aborted and user gets dial tone. SMS retrieval cannot be resumed even if user goes ON-Hook.

Where,

Index is from 01 to XX. XX depends on the SIM card memory.

Deleting the message using the telephone instrument

Lift the handset.	Dial tone
Dial #*-22-Index .	Confirmation tone
Replace the handset.	The message at the indicated index will be deleted.

Important Points:

- Messages can be read only on a FSK type telephone instrument.
- Messages can be deleted one by one, index wise.

Relevant Topics:

1. FXS Port Parameters 53
2. GSM Port Parameters 55

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Software Version and Revision Display

What's this?

Matrix updates its products for upgradation and better performance of some features. Hence the user may like to know the current software version installed in his GFX11. This feature helps the user to know the version and the revision of the system without opening the system. It is very useful for System Engineer, to decide about upgrading the software.

How to use it?

(From SA/SE mode)

Dial 109-#* .	Confirmation tone
Go ON-Hook.	You will get the display of the version and revision of the software.

Important Points:

- On the telephone instrument (FSK phone) the display will be as shown below:

**VVRR
VXXRYY**

Where,

VV/XX = Software Version and RR/YY = Software Revision.

Example:

- if Software Version is 03 and Software Revision is 02, display will be:

**0302
V03R02**

Notes:

- Above configuration works only if CLI type on FXS port is set to FSK.
- If CLI type is set to DTMF, display will be as follows:

0302

Relevant Topics:

1. Programming the System through FXS Port 68
2. System Security (Passwords) 80
3. FXS Port Parameters 53

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System Security (Passwords)

What's this?

The SIMADO GFX11 programming is secured at two levels:

- System Engineering Level. This level is protected by SE Password.
- System Administrator Level. This level is protected by SA Password.

System Engineer Password

- This password is the main password of the system and should be known only to the System Engineer.
- SE password is required to enter the system engineer mode of the system to program the system.
- SE password is strictly a 4-digits password. Only digits 0-9 are considered valid in the password.
- Please note that the system engineer cannot know SA password but he can change the SA password.

How to program?

Use following command to change the SE password:

107-New SE Password-#*

Where,

New SE Password is a number string of 4-digits.

By default, SE Password is 1234.

System Administration Password

- The System administrator uses this password.
- SA password is strictly a 4-digits password. Only 0-9 digits are considered to be valid in the password.

How to program?

Use following command to change SA password:

108-New SA Password-#*

Where,

New SA Password is number string of 4-digits.

By default, SA Password is 1111.

Forgot your Password?

It is very important to remember the SE password. Without this password, it is not possible to enter the program mode and change the settings. It is advisable to make a note of this password at a safe place.

However, if the System Engineer (SE) password is lost, it can be set to its default value by hardware default. Following steps describe the procedure:

- Switch OFF the switch.
- Locate Jumper (J2).
- Put the Jumper in A-B position.
- Switch ON the system.
- Wait for 5 seconds.
- Switch OFF the system.
- Open the system, restore the jumper (J2) in its original position (B-C) and switch ON the system.
- The SE Password gets the default value.

Relevant Topic:

1. Programming the System through FXS Port 68

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Section 3: Appendices

Appendix A: Technical Specifications

System Capacity

SIM Connection	: 1
Extension Port (FXS)	: 1
Control Architecture	: CMOS Micro-Controller with Stored Program Control

GSM port

GSM Frequency Band	: Programmable from option viz. 900, 1800, 1900, 850+1900, 900+1800
RF power	: 2W (900MHz) and 1W (1800MHz)
RF Sensitivity	: Better than -102dBm
Speech Receive Gain	: Programmable
Speech Transmit Gain	: Programmable
Antenna Type	: Fixed or Roof-Top with Flexible Cable (5meter [195.85 Inch])
Antenna Gain	: 2.5 dBi
Antenna Connector	: TNC (Female)

FXS Port

Pulse Detection	: 10PPS +/-10%, Make/Break=33:67ms
DTMF Detection	: ITU-T recommendation Q.24
Caller ID Presentation	: DTMF, FSK-V.23 and FSK Bellcore 212
Extension loop Current	: 40mA
Loop Limit	: 250 Ω (excluding telephone)
Off Hook AC Impedance	: 600 Ω
Ringing voltage	: 55Vrms@25Hz Trapezoidal
Connection	: RJ11
Protection	: Solidstate (over voltage and over current protection)
Answer Signaling	: None, Polarity Reversal
Disconnect Signaling	: None, Polarity Reversal and Open Loop Disconnect
Disconnect Signaling Timer	: 500ms, Programmable

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Power Supply

Supply Input	: 9V-14VDC@1A. External adaptor (90-265VAC, 47-65HZ) supplied with Matrix SIMADO GFX11
Power Consumption	: 5W (Typical)
Connector	: Casio DC power Jack

LED Indications : Power Supply, Network, SIM, FXS

Mechanical Parameters

Dimensions (WxHxD)	: 130 x 197 x 45mm (5.12"x7.76"x1.77")
Weight	: 0.45Kg. (1.0lbs)
Mounting	: Wall Mounting or Table-Top

Operational Conditions

Temperature	: 0°C to +55°C (34° to 131° Fahrenheit)
Humidity	: 5-95% RH, non-condensing

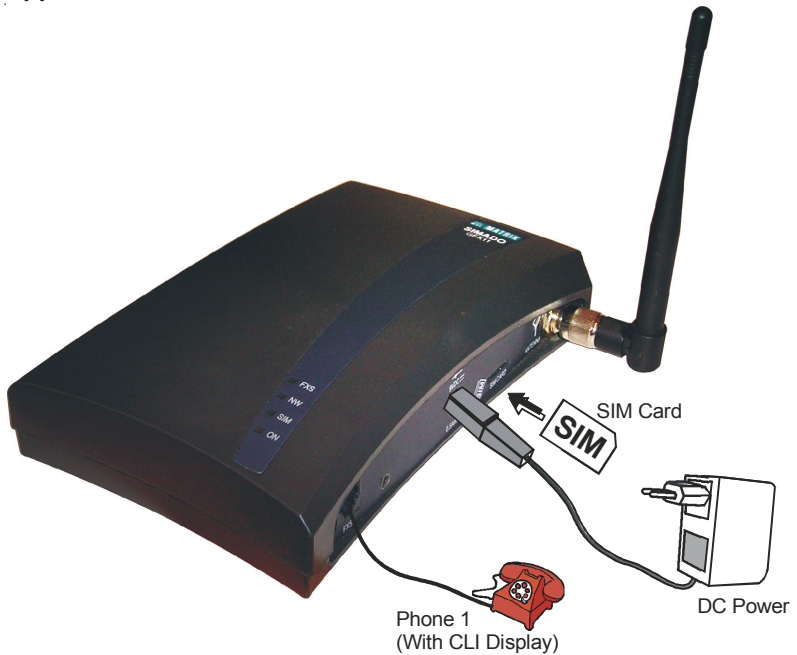
Storage Conditions

Temperature	: -40°C to +85°C (-40° to 185° Fahrenheit)
Humidity	: 0-95% RH, non-condensing

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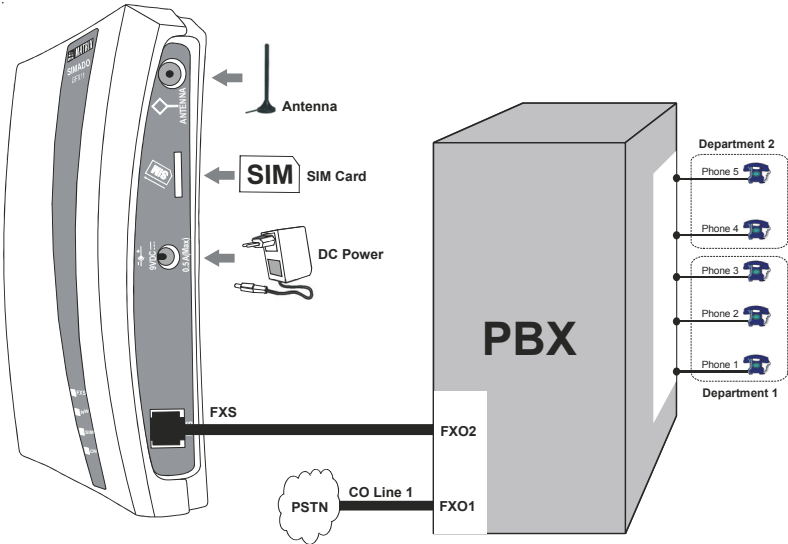
Appendix B: Applications

Application 1: SIMADO GFX11 Standalone



- User of Phone1 can dial any number from the GSM port.

Application 2: SIMADO GFX11 with PBX



- As shown in figure department 1 of PBX of the SOHO Office, can access FXO1 to call any number on PSTN line.
- Users of Department 2 can be provided, access to both GSM line and PSTN line. If they access FXO2 of PBX, they can call any GSM number without paying extra charge for the PSTN network.

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Appendix C: Features at a Glance

01	Reading SMS using telephone instrument	#*-21-Index
02	Deleting SMS using telephone instrument	#*-22-Index
03	To get into SE mode	#*-19-SE Password
04	To get into SA mode	#*-18-SA Password
05	To find out the Signal Strength	#*-11
06	To know the Location Information	#*-12
07	To know the IMEI code	#*-13
08	To program '+'	#1

Appendix D: System Commands

01	Exit SE/SA Mode	00-#*
02	Select the country for tone type	104-Code-#*
03	Restart the System	105-SE Password-#*
04	Load Default Configuration	106-Reverse SE Password-#*
05	Change SE programming Password	107-New SE Password-#*
06	Change SA programming Password	108-New SA Password-#*
07	To know the software version and revision	109-#*
08	Enable/Disable SIM PIN request on Power ON	111-Code-SIM PIN-#*
09	Register the SIM PIN	112-SIM PIN-#*
10	Change the SIM PIN	113-Old SIM PIN-New SIM PIN-#*
11	Register the PUK number	114-PUK No-SIM PIN-#*
12	Clear the Emergency Number at an Index	151-Index-#*
13	Program Emergency Number at an index	151-Index-Emergency Number-#*
14	Enable/Disable GSM Port	201-Code-#*
15	Enable/Disable CLIR on GSM Port	202-Mode-#*
16	Enable/Disable Incoming SMS notification on GSM Port	203-Flag-#*
17	To Enable/Disable the Location Information Indication	205-Flag-#*
18	Program the answer signal to be generated on FXS Port	221-Answer Signal-#*
19	Program SLT port CLI Type	222-CLI Type-#*

20	Program Inter Digit Wait Timer	226-Inter Digit Wait Timer-#*
21	Program the signal to be generated on disconnect signal on FXS Port	248-Disconnect Signal-#*
22	Program the open lkoop disconnect timer of FXS port	249-Open Loop Disconnect Timer-#*
23	To clear all numbers from an allowed list	261-0-#*
24	To clear particular number from an allowed list	261-Location Index-#*
25	Program the Allowed Numbers List	261-Location Index-Number-#*
26	To clear all numbers from a denied list	262-0-#*
27	To clear particular number from a denied list	262-Location Index-#*
28	Program the Denied Numbers List	262-Location Index-Number-#*
29	To default the Receive Gain	271-00-#*
30	Program the Receive Gain	271-Receive Gain-#*
31	To default the Transmit Gain	272-00-#*
32	Program the Transmit Gain	272-Transmit Gain-#*
33	Enable/Disable the Hotline	281-Flag-#*
34	Program the Hotline Destination Number	282-Destination Number-#*
35	Set the Hotline Delay Timer	283-Timer-#*
36	Clear the Automatic Number Translation table	290-0-#*
37	Program dialed number string in the Automatic Number Translation table	291-No. Index-Dialed String/Substring-#*
38	Clear dialed number string from the Automatic Number Translation table	291-Number Index-#*

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39	Clear substitute number string from the Automatic number Translation table	292-Number Index-#*
40	Program substitute number string in the Automatic number Translation table	292-Number Index-Substitute String-#*
41	To Clear the digit program	301-#*
42	Program the digit which will be replaced with '+' in the CLI	301-Number String-#*
43	Select the country for ring type of incoming call	311-Code-#*
44	Program Network Selection Mode	331-Network Selection Mode-#*
45	Clear Network Operator Code	332-Priority-#*
46	Program Network Operator Code with Priority	332-Priority-Code-#*
47	Select GSM Frequency Band	333-GSM Frequency Band-#*
48	Clear All Call Duration Timers	610-0-#*
49	View the duration of the call type	610-Call Type-#*
50	To Set Call Divert	620-Option-Code-Telephone No.#*

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Appendix E: Regulatory Information

DECLARATION OF CONFORMITY

EC Directives



We, Matrix Telecom Private Limited, hereby declare that the product listed below, to which this Declaration of Conformity relates, is in the conformity with Directives, Standards and other Normative Documents as listed.

- 1995/5/EC, Radio Equipment and Telecommunications Terminal Equipment Directive (R&TTE)
- 73/23/EEC, Low Voltage Directive (LVD)
- 89/336/EEC, Electromagnetic Compatibility Directive (EMC)

Type of Product : GSM Fixed Cellular Terminal (FCT)
 Product Name : Simado GFX11
 Model Number : M 157
 Intended Use : External Communication

1. STANDARDS:

EMI/EMC	: CISPR22	IEC 61000-3-2	IEC 61000-3-3
	IEC 61000-4-2	IEC 61000-4-3	IEC 61000-4-4
	IEC 61000-4-5	IEC 61000-4-6	IEC 61000-4-8
	IEC 61000-4-11		

LVD, Safety : IEC 60950 3rd Edition (1999)

2. NORMATIVE DOCUMENTS AND REFERENCES:

Test reports are available at Matrix Telecom Private Limited, 394, GIDC, Makarpura, Vadodara -390 010, India

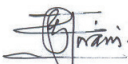
User Information:

User information on intended use, interface compatibility, system facilities and features are laid down in the following documentation

- Simado GFX11 System Manual

Date : 13th February 2007

Place : Vadodara, India



Ganesh Jivani
(Director)

Matrix Telecom Private Limited, Vadodara



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A

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- Allowed List-See [Allowed and Denied Lists](#) 27
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- Abbreviated Dialing-See [Automatic Number Translation](#) 31

B

- Bellcore-See [FXS Port Parameters](#) 53

C

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