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GLOBAL SATELLITE ENGINEERING

MCG-101
Operations Manual



sales@gsat.us : gsat.us

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Introduction

System Theory

The MCG-101 was designed to provide the most powerful and versatile Iridium communications system to offices, remote locations, aircraft, and maritime. The system provides an intelligent solution for Iridium satellite phones to operate as a telephone, Internet gateway, intelligent GPS device, send/receive SMS, and attach to other devices through RS232 and ethernet.

The MCG-101 was designed using 100% digital technology. This enables the system to provide clear, true to life audio, and eliminates any internal echo problems. For external interface portions of the system, such an analog POTS telephone, echo cancellation is performed by a hardware echo canceler.

Overall, the MCG-101 is the ultimate Iridium telecommunications system available to fulfill the needs and demands of today's business, marine, and military needs.



Features

Telephone/POTS line

Attach any standard 2-wire telephone or PBX and you can make and receive calls over Iridium.

Ethernet port

Attach to any computer and you can connect to the Internet, set up your MCG-101 PBX and call routing features, and monitor the status of your MCG-101.

RS232 port

Attach to a computer or remote terminal to connect to the Internet, make standard data calls, or send/receive SMS.

Monitoring

The system health can be monitored locally by any computer attached to the local network, or remotely by a system administrator or technician.

GPS

An optional GPS receiver can track your location and send position reports via SMS or SBD when your MCG-101 is idle.

System Capabilities

System capabilities include all major PBX features, including:

Call Features

Authentication

AutomatedAttendant

Blacklists

Blind Transfer

Call Detail Records

Call Forward on Busy

Call Forward on No Answer

Call Forward Variable

Call Monitoring

Call Parking

Call Queuing

Call Retrieval

Call Routing (DID & ANI)

Call Snooping

Call Transfer

Call Waiting

Conference Bridging

Database Store/Retrieve

Database Integration

Dial by Name

Direct Inward System Access

Distinctive Ring

Do Not Disturb

Flexible Extension Logic

Interactive Directory Listing

Local and Remote Call Agents

Macros

Predictive Dialer

Privacy

Overhead Paging

Protocol Conversion

Remote Call Pickup

Remote Office Support

Roaming Extensions

Supervised Transfer

Talk Detection

Three-way Calling

Transcoding

Graphical Call Manager

Predictive Dialer

Voice mail

- Visual Indicator for Message Waiting
- Stutter Dial tone for Message Waiting
- Voice mail to email
- Voice mail Groups
- Web Voice mail Interface

Codecs

ADPCM/G711/G722/G7231/G726/G729/GSM/iLBC/Linear/LPC-10/Speex

Protocols

IAX

SIP

SCCP

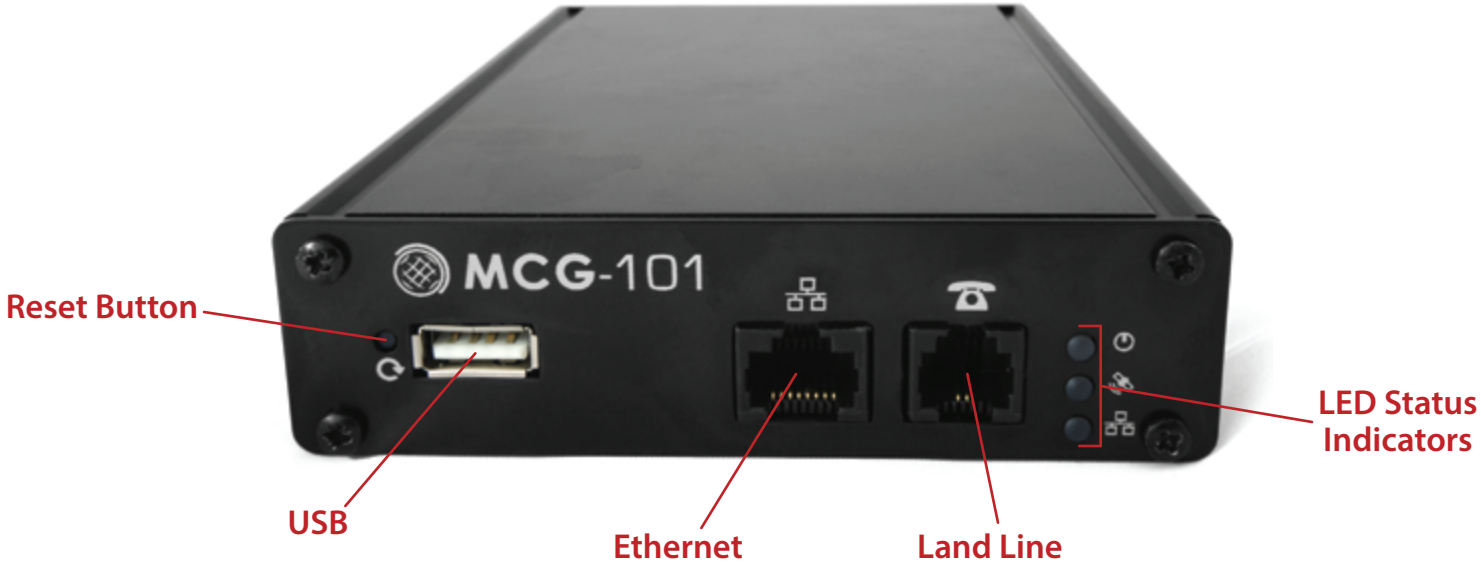
Traditional Telephony Interoperability

FXS

MF and DTMF support

Equipment Overview

The MCG-101 is a wall mounted satellite terminal that contains Iridium technology. The terminal contains an internal SIM card that must be installed. The MCG-101 also has an exposed connector for attaching the required external antenna. The status of the entire system can be monitored through an attached computer.





Power Setup



Power Requirements
5W or 51 BTU per hour

DC Input Voltage
5V@ 3A

Environmental Requirements
Operating temperature:
32 to 113ºF (0 to 45ºC)

Storage temperature:
-13 to 158ºF (-25 to 70ºC)

Operating relative humidity:
10 to 85% (noncondensing)

Operating altitude:
up to 10,000 ft (3000m)

Storage altitude:
up to 15,000 ft (4500m)

LED Status Indicators



Power

Off:
No Power

Solid:
On

Fast Flash:
Unit is booting

Signal

Off:
No signal but registered

Solid:
Idle with >20% signal

Slow Flash:
Data or voice call in progress

Fast Flash:
Registration of SIM error or no signal to allow registration

Ethernet

Off:
Disconnected

Solid:
Connected

Fast Flash:
Network Traffic

Analog Port

You can connect a standard analog telephone to the MCG-101 to make and recieve calls, or dial other extensions. The built in IP PBX manages the call routing and features which can be customized via the web management console. The default dialing pattern and call flow is described in page 15.



Note: Size not to scale

Adding Additional Phones (Extra)

MCG-101 will also work with one or two analog phones by using an MCG101 analog phone adapter (sold separately).

2-Port Analog Adapter

This adapter provides an interface between the MCG-101 unit and two analog telephones to allow you to set up a PBX system with multiple analog telephones. This adapter is powered by a 5V adapter. This adapter is sold separately. Please contact your satellite dealer for more information.

Both analog adapters can work in conjunction with smartphone use. Care needs to be taken, however, in assigning the appropriate extensions to each device so that they don't conflict.



Note: Size not to scale

WiFi Setup

Use your computer or device to connect via wifi.



SSID
wxa-102-xxxx

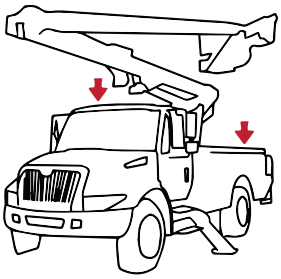
Password
none

Antenna Setup

Recommended Antenna Installation

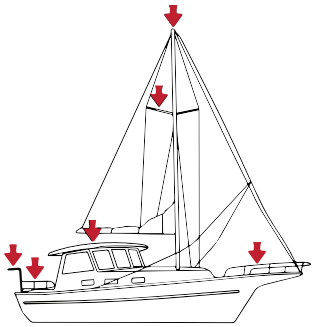
Vehicle Mounting

When mounting the antenna on a vehicle, make sure there is no large obstruction blocking its view of the sky.



Ship Mounting

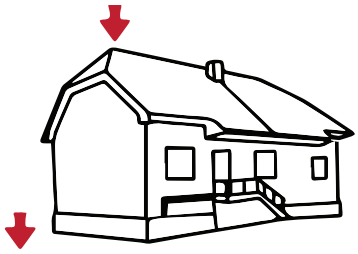
The antenna can be installed in many different locations on board. Make sure that the antenna has a clear view of the sky and there is no large obstruction blocking its view of the sky.



The antenna must not be on the same plane as the radar equipment. It is best to keep it away from radar and other RF interference for best performance.

Building Mounting

When mounting the antenna on a building, make sure that there is no obstruction blocking its view of the sky.





SIM Card Setup

Activating SIM Card

If you purchased airtime or a SIM card for your MCG-101 unit, your satellite provider will most likely have already inserted the SIM card into the unit for you. Most providers ship SIM cards unactivated, however, so you will have to request activation of your SIM card in order to begin testing and using your system. MCG-101 can use both prepaid, postpaid and crew SIM cards.

Once you are ready to begin using your unit, call or email your satellite dealer to request airtime activation. Generally, activation takes a few hours, but it can take up to 48 hours to cycle through the Iridium system. Once your airtime is activated your validity period for prepaid airtime will start. If you have postpaid airtime, your contract start date will begin with the activation date.

If you did not purchase airtime or a SIM card at the time you purchased the MCG-101, you will need to choose airtime and receive a SIM card. Please follow instructions under “Insert or Switch out SIM Card” to insert the SIM card into the MCG-101 unit yourself.



Reset



Standard Reset
Press and release quickly

Factory Reset
Press and hold for 5 seconds

Voice and PBX Software

The MCG-101 can run voice calls made on your smartphone through the Iridium network as regular Iridium satellite phone calls. In order to enable this feature you must download the free XGate Phone App.

Note: While it is recommended to use the XGate Phone app, any SIP VoIP soft-phone client software can be used with the MCG-101.

Username
201

Password
1234

Proxy
192.168.10.1

All settings are automatically put in for you. It is not necessary to make any changes. To make a call the MCG-101 must be powered ON and you must be connected to the wireless network.

XGate Satellite Phone App will allow you to make phone calls through the MCG-101 using your smartphone. You will be able to access all your contacts just as you would normally be able to do. The MCG-101 comes pre-programmed with four SIP voice extensions. By default, these extensions are 201 through 204. The SIP password for all 4 extensions is 1234.

201 is defined as the captain line and is the only line that can receive calls. The XGate Phone app comes configured for use with extension 201. If more than one user is expected to use the system then each user should be assigned a different extension.

Extension, passwords, and ring groups can be defined in the MCG-101's web admin UI under Services > PBX. If using an Analog phone adapter with MCG-101 (sold separately), the phone adapter will assign line 1 (the Captain line) to extension 201 and line 2 (if using a dual phone adapter) to extension 202.

Users using the XGate Phone app in addition to analog adapters need to change the settings in XGate Phone or other SIP client to change the SIP extensions to something other than 201 and 202 (since those two extensions will automatically be assigned to the analog adapters and will cause conflicts if the SIP clients try to use those same extensions).

Installation

System Initialization

The entire system will require three (3) minutes to initialize. The system is ready for operation when the front panel of the MCG-101 displays green lights. (see LED behavior charts Pg 6)

System Operation

How to place a call:

International: Dial 011 (country code) (phone number)

US: Dial 001 (phone number)

Iridium: Dial 8816 (phone number) or Dial 008816 (phone number)

How to receive a call:

Dial the phone number of the Iridium SIM card installed in your MCG-101.

Contact your Service Provider if you need assistance with your SIM cards.

International
011 (country code)(phone number)

US
001 (phone number)

Iridium
8816 (phone number)
or
008816 (phone number)

System Functions/Extensions

GPS Tracking

The MCG-101 works as a tracking device with the industry-leading RedPort Tracking service. The MCG-101 provides tracking data using the integrated GPS chip built directly into the satellite terminal.

The MCG-101 works with the Iridium network and offers tracking. Tracking service with the MCG-101 is a premium service with a monthly fee. If you don't have tracking enabled, please contact your service provider for more information. The MCG-101 can also send position reports via SMS.

XGate Satellite Email Service

XGate is the world's leading independent satellite email, web and weather service. The MCG-101 blocks all data traffic from going over your satellite connection except XGate-compressed email, web and weather data. XGate is available for several Operating System platforms. You will find links for all versions here: http://www.redportglobal.com/support/xgate-downloads

We recommend that you register your service before installing the software. XGate must be registered in order to receive a valid username and password. You can register here: http://registerxgate.redportglobal.com/

Online registration is required for new users that have only an iOS and/or Android device. Computer users are welcome to register online as well; or, you can register from within the software (see the XGate Help File > Register for Service for details).

During registration you must enter a Preferred User Id. This Id will become part of your new satellite email address. It is important to enter a valid email address for the Contact Email as this will become the email address of record on your account that is used for all official notices.

System Functions/Extensions

When you have successfully registered the account, open XGate and enter the account information in the Settings window. To find the Settings window:

On Windows PC: go to Options > Settings

On MAC: go to Preferences

On iOS device: go to Settings

On Android device: go to Settings

Configure XGate To Work With The MCG-101

Open XGate Settings and select the Connection Type “Aurora”.

Test Your Configuration

1. Power ON the MCG-101.
2. From your computer, tablet, etc. connect to the wireless network created by the MCG-101. The name of the wireless network will be something like wxa-112-xxxx.
3. Open XGate and click the <Start> button.
4. You can see the progress of the connection in the XGate Log window.

Dimensions and Weight



MCG-101 (without mounting tabs)

Height
2 in. (5.08 cm)

Width
8 in. (20.32cm)

Depth
8 in. (20.32cm)

Weight
4 lb (1.8kg)

Telephone Jack

Ringing REN
5.0

RMS Ringing Voltage
60 V DC RMS

On Hook Voltage
90 V DC

Troubleshooting

If your connection attempt was not successful please refer to the XGate Help File for more detailed information and adjust your configuration accordingly.

If you are still unable to connect using your satellite phone, please answer these questions:

1. Which OS are you using? (Windows, Mac, Linux, Apple iOS, Google Android, etc)

2. Where are you located in world? What environment are you in? (Rural, city, marina, open-sea, etc).

3. What is your XGate username?

4. What version of XGate are you using?

5. What is the error message that appears in the session log? To expedite your support request, please submit of copy of the entire transaction log.

Please note that you are using a MCG-101 and submit your answers in an email to your satellite dealer.

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