

TG100

Operating Instructions

Draft Version 1.1

July 4, 2002

SAFETY INFORMATION

EXPOSURE TO RADIO FREQUENCY SIGNALS

In August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for mobile wireless phones. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this phone complies with the FCC guidelines and these international standards bodies;

ANSI C95.1(1992)*

NCRP Report 86(1986)*

ICNIRP(1996)*

* American National Standards Institute; National Council on Radiation Protection and Measurements; International Commission on Non-Ionizing Radiation Protection

Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. Over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1). The design of your phone complies with the FCC guidelines in addition to those standards.

ANTENNA CARE

Use only the supplied or an approved antenna. Unauthorized antennas, modifications, or attachments could damage the phone and may violate FCC regulations.

PHONE OPERATION

Never violate any of the following Rules and Regulations of the FCC when using this device model. Such violations are punishable by fine, imprisonment or both.

TIPS ON EFFICIENT OPERATION :

- Do not touch the antenna unnecessarily when this device model is in use. Contact with the antenna affects call quality and may cause the device to operate at a higher power level than otherwise needed.
- Never use your device to send false distress calls.

DRIVING

Check the laws and regulations on the use of wireless telephones in the areas where you drive. Always obey them. Also, if using the device while driving, please:

- Give full attention to driving - - driving safely is your first responsibility.
- Pull off the road and park before making or answering a call if driving conditions so require.

ELECTRONIC DEVICES

Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against the RF signals from your device.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six (6") inches be maintained between a wireless phone device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research.

Persons with pacemakers:

- Should ALWAYS keep the device more than six inches from their pacemaker when the device is turned ON.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if they are adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information.

FOR VEHICLES EQUIPPED WITH AN AIR BAG

An air bag inflates with great force. DO NOT place objects, including both installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

OTHER RESTRICTIONS

Your device model is designed for use at ambient temperatures between –20°C and +60°C. Please note that higher or lower temperatures can affect the proper functioning of the device.

TABLE OF CONTENTS

1. OVERVIEW	5
1.1. FEATURES.....	5
1.2. CONTROLS.....	5
2. OPERATION	7
2.1. POWER DOWN MODE	7
2.2. EMERGENCY CALL MODE.....	7
2.2.1. Initiating a Call	7
2.2.2. Establishing Position.....	7
2.2.3. Voice Conversation.....	8
2.2.3. Emergency Response Center (ERC).....	8
2.3. SELF TEST MODE	9
2.3.1. Indication by using TEST LED (Flashing/Solid)	9
2.3.1.1. GPS Module Test.....	9
2.3.1.2. AMPS RSSI Test.....	9
3. GENERAL SPECIFICATIONS	10
4. NOTICE FOR USING TG100	11

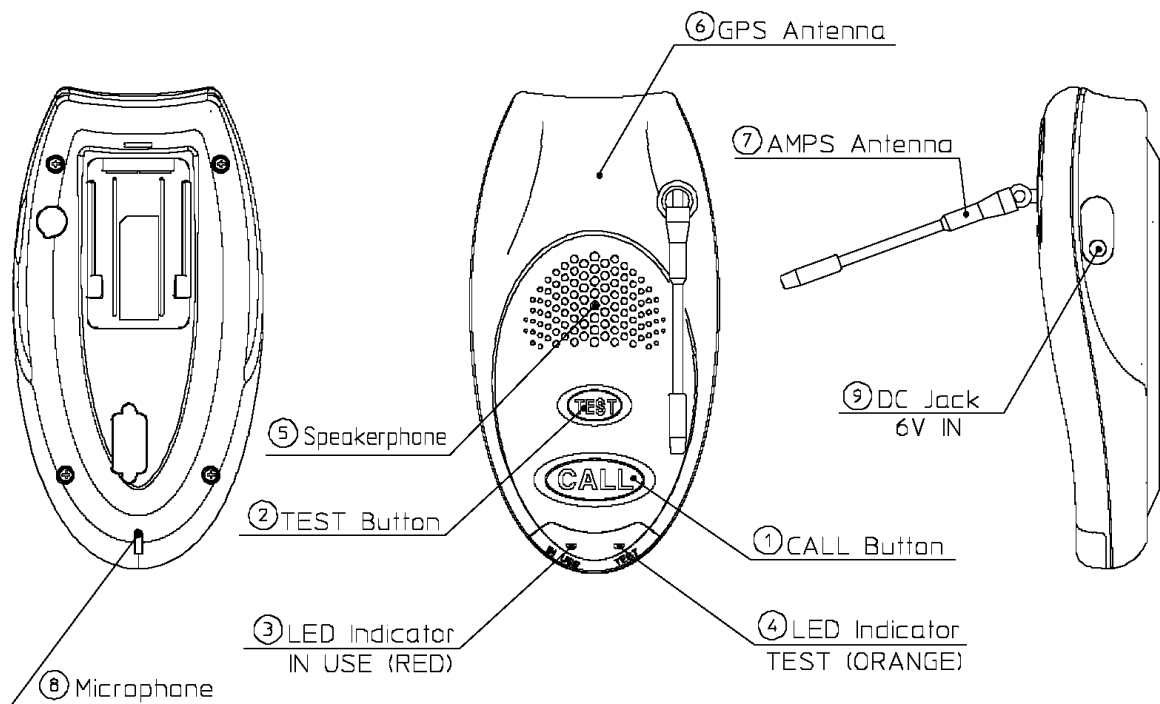
1. Overview

This phone will enable a user to place a call to the Emergency Response Center (ERC) in order to report an emergency condition, automatically provide global positioning, and dispatch to the user's location with minimal effort to the user. Upon activation, the terminal device will place the call via the local cellular system to the emergency reporting center utilizing pre-programmed, stored area code, NNX, and number. Once the call is completed to the emergency center, the terminal device will then automatically provide latitude and longitude positioning through GPS(Global Positioning System) via the selected cellular traffic channel. Once the latitude and longitude data is sent/received, the ERC will have the option to open up the cellular traffic channel for voice use via a speakerphone arrangement in the terminal device allowing the user to converse with personnel at the ERC.

1.1. Features

- GPS based location technology
- Built-in High sensitivity GPS receiver
- Voice speakerphone backup capability
- AMPS based wireless technology in the US
- Nationwide coverage (over 95% geographic of the USA)
- Large control button operation
- Test button for testing internal circuit, GPS lat/lon communication functions, etc;

1.2. Controls



(1) CALL (Emergency call) Button

Emergency Call Origination will be initiated when pushed for 1 second.

After connecting with Emergency Response Center (ERC), the unit acts according to a command received from ERC. If the unit was not able to connect with ERC, it does dialing to 911.

(2) TEST Button

This button will be used to test the unit.

a) Communication between AMPS cpu and GPS module

b) Actual operation with the AMPS RSSI level and the control channel detection

(3) IN USE Indicator

This LED Indicates the Operation condition:

Flashing Red:

Indicates the call in progress and till center communication mode is established.

Solid Red:

Indicates the center communication mode is established.

(4) TEST Indicator

This LED indicates the Self Test condition:

Flashing Orange:

Indicates the GPS module communication is error.

Or

Indicates the AMPS RSSI Signal is too weak or No Service.

Solid Orange:

Indicates the GPS module communication is OK.

And

Indicates the AMPS RSSI Signal is acceptable and the control channel was detected.

(5) Speakerphone

Even in case the location by using GPS cannot be caught, it is possible to make voice call to ERC operator or 911 operator by using Speakerphone and Microphone without lifting up this unit near users ear.

(6) GPS Antenna

(7) AMPS Antenna

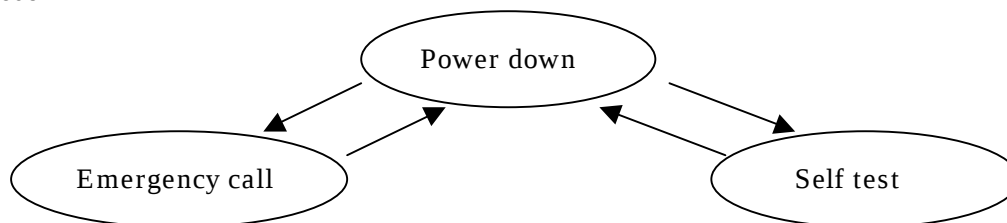
(8) Microphone

(9) DC 6V Input

2. Operation

In unit operation, there are the following three independent modes;

- Power down mode
- Emergency call mode
- Self test mode



The following describes each mode;

2.1. Power Down Mode

In this mode, all the circuits in the phone are being off to save battery. And this is also the mode where CALL (Emergency Call) button or TEST button are waiting for being pushed.

2.2. Emergency Call Mode

2.2.1. Initiating a Call

The unit does not have a conventional cellular keypad. Rather, it has a large "Emergency call button" design in order to simplify its use. When the phone is in Power down mode, holding CALL button for 1 second will initiate an emergency calling process.

2.2.2. Establishing Position

The unit incorporates a built-in Global Positioning System (GPS) receiver. The GPS receiver is used to establish the position of the user (in latitude and longitude format).

After obtaining the location, the unit will place a call to the Emergency Response Center (ERC) utilizing a pre-programmed, stored area code, NNX, and number via the local cellular telephone company.

When the phone initiates an Emergency call, the IN USE LED will be flashing the call in progress and till communication established. If the call cannot be completed via the preferred system (A or B) the unit will automatically try the other system (A or B).

Once an emergency call is established to the Emergency Response Center (ERC) and the user's identification (ESN, MIN) has been sent (utilizing DTMF tones as the encoding/signaling medium) to the ERC (utilizing DTMF tones as the encoding/signaling medium) enabling the ERC personnel to determine the user's identity. The location information is then sent to the ERC and then dispatch appropriate response teams. At no time will the GPS receiver and the AMPS transmitter operate simultaneously.

Retry sequence is as follows:

- 1) ERC-1 Access (Preferred system)
| Fail
- 2) ERC-1 Access (Non-Preferred system)
| Fail
- 3) ERC-2 Access (Preferred system)
| Fail
- 4) ERC-2 Access (Non-Preferred system)
| Fail
- 5) 911 Access (Preferred system)
| Fail
- 6) 911 Access (Non-Preferred system)
| Fail
will go to 1)

2.2.3. Voice Conversation

The unit incorporates a built-in speakerphone arrangement. A speakerphone arrangement is preferred for this service in order to provide a viable means of voice communication between a user and ERC personnel. During an emergency, the user may be incapacitated or fallen and the unit may be on the ground or floor. A speakerphone would, at least enable the ERC personnel to be able to listen to the user or their surroundings. In addition, the user would have the ability to converse with the ERC personnel without having the device up to their ear. The speakerphone would be optionally switched in to the cellular traffic channel by the ERC immediately after the ESN, MIN and latitude/longitude information was sent and acknowledged.

2.2.3. Emergency Response Center (ERC)

The Emergency Response Center (ERC) consists of emergency call response personnel and links to local emergency response institutions (e.g. Police, Fire, Hospital, Ambulance, etc.).

Once a user emergency button has been pressed on the unit, the ERC will be contacted via the cellular network. The transmitted data from the unit will include the raw GPS data, the unit electronic serial number (ESN), and the unit mobile identification number (MIN). The ERC system will then convert the raw GPS data (latitude/longitude) to a location and user information will be mapped on the dispatch console of the ERC.

After the GPS data is received from the unit, the unit and ERC will then optionally be linked via the cellular traffic channel for two-way voice communication. This will be via a speakerphone arrangement incorporated in the unit.

2.3. Self Test Mode

When the unit is in Power Down mode, press and hold TEST button for one second. Then, the PHONE starts Self-Test for the following two items (GPS Module, AMPS RSSI).

2.3.1. Indication by using TEST LED (Flashing/Solid)

2.3.1.1. GPS Module Test

This test checks whether receive circuit of GPS module operates properly and checks whether Communication between MAIN CPU and GPS module is made properly.

If an error is detected, the status becomes flashing TEST LED(Orange).

2.3.1.2. AMPS RSSI Test

This test is to check whether RSSI (Received Signal Strength Indicator) is at a reasonable level and check whether it is possible to detect Control Channel so that Phone can become SERVICE status.

If the status remains "No Service" and cannot become SERVICE status, TEST LED (Orange) becomes flashing.

When the communication with GPS module is normal and that PHONE was able to become SERVICE status, TEST LED (Orange) becomes SOLID.

It takes about 8 to 10 seconds to complete these two tests

3. General Specifications

AMPS:

Frequency Range:

Transmit: 824.040 to 848.970 MHz

Receive: 869.040 to 893.970 MHz

Number of RF Channels: 832 Channels, Full Duplex

Channel Spacing: 30 KHz

Duplex Spacing: 45 MHz

Frequency Stability: within 2.5PPM

RF Power Output: Max. 0.6 W

AMPS and GPS

Operating Temperature: -20 to +60 degree Celsius

Supply Voltage: 6 V DC nominal

Dimensions(w x H x D): 74mm x 142mm x 31.5mm

Weight: Approx. 147g

** Subject to change without notice.*

4. NOTICE FOR USING TG100

This unit has a hands-free function.

