DS500
User Manual

SENDUM WIRELESS, CORP.

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1   Purpose

The purpose of this guide is to describe the basic features of the DS500.

2   Introduction

2.1   *What is a DS500*

➢ The DS500 is a wireless tracking device which operates on the CDMA network using assisted GPS for location.
➢ It is used for tracking valuable assets (such as tools, machinery, etc) in construction sites.

2.2   *How does a DS500 work*

➢ It establishes a data connection through either the cellular or the PCS band similar to a mobile phone.
➢ A user can send a SMS message through an internet connection or a mobile phone to the device by calling its phone number. The device gets its location and send it back to the user via the CDMA network.

3   Getting Started

3.1   *Battery Tips*

Battery life depends on the network, signal strength, temperature, features, and accessories you use.

➢ Always use Sendum Original batteries and battery chargers. The warranty does not cover damage caused by non-Sendum batteries and/or chargers.
➢ New batteries or batteries stored for a long time may take more time to charge.
➢ When charging your battery, keep it near room temperature.
➢ When storing your battery, keep it uncharged in a cool, dark, dry place, such as a refrigerator.
➢ Never expose batteries to temperatures below -10°C (14°F) or above 45°C (113°F). Always take your device with you when you leave your vehicle.
➢ It is normal for batteries to gradually wear down and require longer charging times. If you notice a change in your battery life, it is probably time to purchase a new battery.

Contact your local recycling center for proper battery disposal.

Warning: Never dispose of batteries in a fire because they may explode.

Before using your device, please read the battery safety information in the *Safety and General Information* section included in this guide.

3.2 Installing the Battery

The battery is inaccessible by users

3.3 Removing the Battery

The battery is inaccessible by users

3.4 Charging the Battery

New batteries are shipped partially charged. Before you can use your device, install and charge the battery as described below. Some batteries perform best after several full charge/discharge cycles.

3.4.1 Charging using the DS500 Device

Simply attached the Sendum charger into the device and plug the AC adapter to the AC outlet.
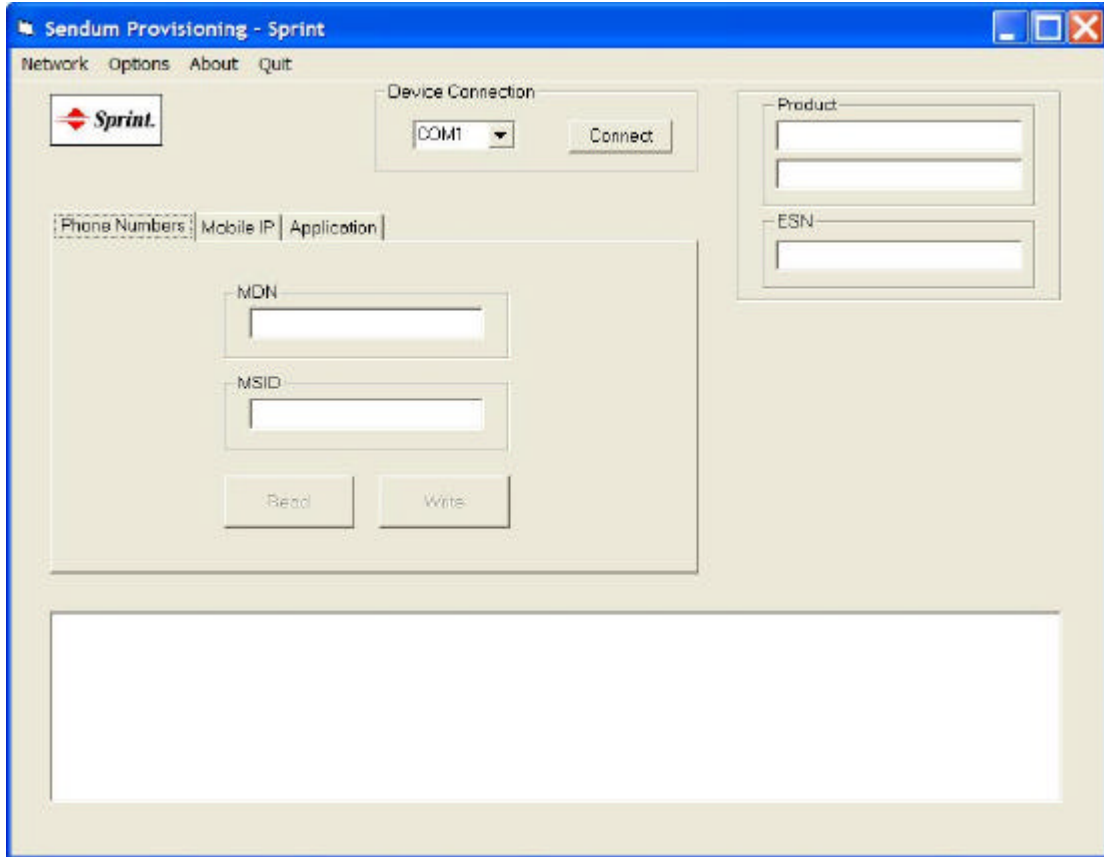
4 Provisioning Your Device

➢ Connect your device using the sendum USB cable. If problem communicating with the device. Use the following documents for troubleshooting:

DEX00003 (DOC
QUALCOMM USB [

➢ Open the Sendum Provisioning Tool. Should look like:

> ➢ Select the com port that the device is communicating, then press "Connect". The ESN will be shown.
> ➢ If the device is already provisioned, the "Read" button is used to check.
> ➢ Now all provisioning parameters can be entered into the appropriate boxes.
> ➢ Press "Write" to load into the device.

5 DS500 Command Set

The DS500 supports the following commands. There are sent to the device using SMS messages:

//BREW:0x12345678:PSW2,PROVISION,PDE,<ip_address>:<port>

Sets the PDE address used by the device. In control plane architectures, this is the address of the Control Plane Server. In user plane architectures, this is the address of the actual PDE.

//BREW:0x12345678:PSW2,PROVISION,APP,<ip_address>:<port>

Sets the APP address of used by the device. All messages from the device are sent to this IP address.

//BREW:0x12345678:PSW2,COMMAND,STATUS

Causes the device to send a status report.

//BREW:0x12345678:PSW2,COMMAND,LOCATE

Causes the device to locate itself and send a location report.

//BREW:0x12345678:PSW2,REPORT,STATUS,<interval>

Causes the device to send a status report every <interval> seconds.

//BREW:0x12345678:PSW2,REPORT,LOCATION,<interval>

Causes the device to send a location report every <interval> seconds.

The device sends the following messages to the APP IP address:

@RESPONSE,<MDN>,PSW2,RESPONSE,STATUS,BATTERY=<0..255>, TEMPERATURE=<0..255>

Indicates device status.

@RESPONSE,<MDN>,PSW2,RESPONSE,LOCATE,FOUND

Indicates that the device found itself. This is in response to a command to locate the device. Actual location results are returned from the PDE and vary from carrier to carrier.

6 Locating Your DS500

In order to **Locate** your VT100, send it the following SMS message:

```
PSW1,LOCATE,0
```

6.1 Frequent Tracking

In order to **Track** (repeated locating) your VT100, send it an SMS message in the following format:

```
PSW1,LOCATE,X
```

where the value of **X** is specified according to the following table:

1	wait 15 seconds before locating again
2	wait 30 seconds before locating again
3	wait 45 seconds before locating again
4	wait 60 seconds before locating again

5	wait 75 seconds before locating again
6	wait 90 seconds before locating again
7	wait 105 seconds before locating again
8	wait 120 seconds before locating again
9	wait 135 seconds before locating again

To stop **Tracking** your VT100 in this mode, send it the following SMS message:

```
PSW1,LOCATE,0
```

6.2   Periodic Tracking

In order to **Track** (repeated locating) your VT100, send it an SMS message in the following format:

```
PSW1,REPORT,X
```

where the value of **X** is specified according to the following table:

1	wait 15 minutes before locating again
2	wait 30 minutes before locating again
3	wait 45 minutes before locating again
4	wait 60 minutes before locating again
5	wait 75 minutes before locating again
6	wait 90 minutes before locating again
7	wait 105 minutes before locating again
8	wait 120 minutes before locating again
9	wait 135 minutes before locating again

To stop **Tracking** your VT100 in this mode, send it the following SMS message:

```
PSW1,REPORT,0
```

6.3   Fast Tracking

In order to **Track** (repeated locating) your VT100, send it an SMS message in the following format:

```
PSW1,FIND
```

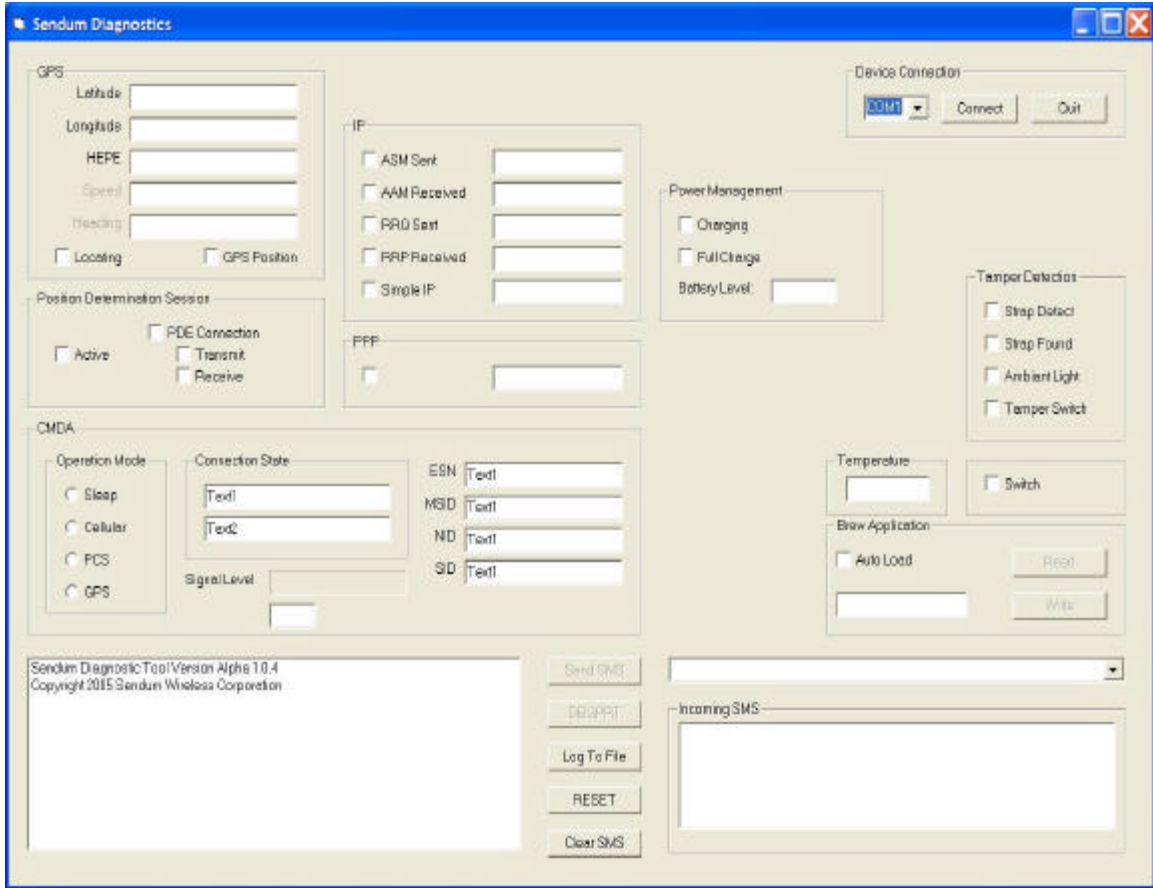Your VT100 will wait three seconds before locatiing again.

To stop **Tracking** your VT100 in this mode, send it the following SMS message:

```
PSW1,STOPFIND
```

7   Using the Diagnostic Tool

With the unit connected, open the Sendum Diagnostic Tool:

8   Troubleshooting

Email your requests to supports@sendum.com

9   HUMAN EXPOSURE COMPLIANCE STATEMENT

The following statement addressing human exposure to the RF energy emitted by the Modem is included in the "User's Manual."

> Pursuant to 47 CFR § 24.52 of the FCC Rules and Regulations, personal communications services (PCS) equipment is subject to the radio frequency radiation exposure requirements specified in § 1.1307(b), § 2.1091 and § 2.1093, as appropriate.
>
> Sendum certifies that it has determined that the Modem complies with the RF hazard requirements applicable to broadband PCS equipment operating under the authority of 47 CFR Part 24, Subpart E of the FCC Rules and Regulations. This determination is dependent upon installation, operation and use of the equipment in accordance with all instructions provided.
>
> The DS500 is designed for and intended to be used in fixed and mobile applications. "Fixed" means that the device is physically secured at one location and is not able to be easily moved to another location. "Mobile" means that the device is designed to be used in other than fixed locations and generally in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's antenna and the body of the user or nearby persons. The EUT is not designed for or intended to be used in portable applications (within 20 cm of the body of the user) and such uses are strictly prohibited.
>
> To ensure that the DS500 complies with current FCC regulations limiting both maximum RF output power and human exposure to radio frequency radiation, a separation distance of at least 20 cm must be maintained between the unit's antenna and the body of the user and any nearby persons at all times and in all applications and uses. Additionally, in mobile applications, maximum antenna gain must not exceed 3 dBi.

10 Important Safety and Legal Information

IMPORTANT INFORMATION ON SAFE AND EFFICIENT OPERATION. READ THIS INFORMATION BEFORE USING YOUR DEVICE.

- ➢ Never attempt to disassemble your DS500. If service or repair is required, return the device to an authorized Sendum service centre.
- ➢ Always use Sendum provided accessories. Use of incompatible equipment could result in fire, electric shock, or bodily injury.
- ➢ Never allow children to play with your DS500.
- ➢ Never store or transport flammable liquids, gases, or explosive materials in the same compartment as your DS500 or any of its accessories.
- ➢ Always secure your DS500. Never place the device on the passenger seat or anyplace else in the vehicle where it can become a projectile during collision or sudden stop.

➢ Never expose your DS500 to high temperatures, such as those found near a heater. This can cause heat damage to the plastic components, the electronic components, and the backup battery.
➢ Never drop your DS500 or expose it to violent impact or shock. This can cause mechanical damage.
➢ Never use harsh chemicals, cleaning solvents, or strong detergents to clean your DS500.
➢ Never attempt to dispose of your DS500 by throwing it into a fire.
➢ Your DS500 is not to be operated in body-worn applications. Keep your DS500 twenty (20 cm) centimeters or more from a human body when operating.
➢ Ensure your DS500 is powered off prior to shipping by air.
➢ Do not proceed into areas posted "Turn off two-way radio", such as blasting areas.
➢ Do not install your DS500 in the area over an airbag. If the airbag inflates, serious injury could result.

10.1 *RF Energy Interference/Compatibility*

Note: Nearly every electronic device is susceptible to RF energy interference from external sources if inadequately shielded, designed, otherwise configured for RF energy compatibility. In some circumstances your DS500 may cause interference.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.
--Increase the separation between the equipment and receiver.
--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
--Consult the dealer or an experienced radio/TV technician for help.