SaTerm 1915

Configuration & Test Utility Software for

SATELLINE 1915 Radio Modems

User's Guide (v. SW08)

Introduction

This document describes the basic functions and use of SaTerm 1915 configuration and test software used with SATELLINE 1915 Radio Modems and a Windows PC. Depending on the installation method, there may be a shortcut icon on the PC Desktop, in the Start Menu, or on the Quick Launch Toolbar. The application may also be launched directly from the folder it resides in.

Using the Software

When launched, you will see four tabs across the top of the program. Each of these tabs has a different function. The four tabs are:

- PC Settings: Allows a customer to select the desired COM port and configure that port to fit the radios settings.
- Range Test: Allows a customer to perform a range test between two radios.
- Terminal: Allows access to the computers COM port with a terminal emulation program. This tab also allows the ability to access the radios' firmware using AT commands (for a complete listing of the radios' AT commands, please see the 1915 user's guide).
- Modem Configuration: Allows the ability to program the radios' firmware settings via a graphical user interface.

PC Settings Tab

The program opens to the "PC Settings" tab. The PC Settings tab is broken down into three basic areas: The COM port setup, the Host Setup, and the User Com ports.

COM port setup:

The PC settings tab allows the user to select a COM port and configure the selected COM port settings when accessing the port. Some of these settings include: Baud Rate: Both standard and non-standard Flow Control: Hardware, Software (Xon/Xoff), None Data bits: 4, 5, 6, 7, and 8 data bits Parity: None, Odd, Even, Mark and Space Stop bit: 1, 1.5, and 2 To change any of the above settings, select the pull down menu on the left of the value and select the desired setting. To enter a non-standard baud rate, type the baud rate into the baud rate box to the left. The Test / Query button is used to test the selected COM port and PC settings. If the settings and COM port are correct, you will receive a response similar to the one depicted in Figure 4 below. By default, the COM port settings are as follows:

Baud 9600

Flow Control: None

Data Bits: 8

Parity: None:

Stop Bits: 1

These are the radio modem default values. For initial configuration, begin with these settings.

Host Setup:

The Host Setup tab allows the user to configure how SaTerm 1915 interfaces with a radio's firmware. This includes determining whether API or AT command mode will be used to access the module's firmware as well as the proper command mode character and sequence. By default, the Host Settings are as follows:

API mode: not enabled (Not checked)

Command mode Character: + (ACSII) 2B (Hex).

Before Guard Time: 1000 (1 Sec)

After Guard Time: 1000 (1 Sec)

These are the radio modem default values. For initial configuration, begin with these settings.

User COM ports:

The user COM port option allows the user to "Add" or "Delete" a user-created COM port. This is only for temporary use. Once the program has closed, the user-created COM port will disappear and is no longer accessible to the program.

Range Test Tab

The range test tab is designed to verify the connection and quality of a radio link by sending a user-specified data packet and verifying the response packet is the same, within the time specified. For performing a standard range test, use a loop back connector on the remote radio to return the signal. Other configurations are possible.

Packet Data and Size

By default, the size of the data packet sent is 32 bytes. This data packet specified can be adjusted in either size or the text sent. To modify the size of the packet sent, change the value next to the "Create Data" box and click on the "Create Data" button. If you want to change the data sent, delete the text in the transmit window and place in your desired text. By modifying the text, data packet size, packet delay and the data receive timeout; the user is able to simulate a wide range of scenarios.

RSSI:

The RSSI option of SaTerm 1915 allows the user to see the RSSI (Received Signal Strength Indicator) of a received packet when performing a range test.

API Function:

SaTerm also allows the user to test the API function of a radio during a range test. To perform a range test with the API function of the radio, follow the steps outlined below:

1. Configure the Base with API enabled and a unique 16 bit or 64 bit source address.
2. Configure the remote radio with a unique source address and set the Destination address to equal the Base radio's source address.
3. Enable the API option in SaTerm 1915 on the PC Settings tab and connect the base radio to the PC.
4. Connect the red loopback adapter to the remote radio and place them a distance apart.
5. Enter either the 16 bit or 64 bit destination address of the remote radio into the Destination Address box on the Range Test tab.
6. Create a data packet of your choosing by typing in the data in the Transmit box
7. To start a Range test, click on Start. You will notice the TX failures, Purge, CCA, and ACK messages will increment accordingly while the range test is performed. To stop a range test, click on the Stop button.

The Terminal Tab

The Terminal tab has three basic functions: Terminal emulator Ability to send and receive predefined data pacts (Assemble packet) Ability to send and receive data in Hex and ASCII formats (Show/Hide hex)

The main terminal window

The main white portion of this tab is the window for the terminal emulator. The text in blue is what has been typed in and directed out to the radio's serial port while the red text is the incoming data from the radio's serial port.

Assemble Packet

The Assemble Packet option on the Terminal tab is designed to allow the user to assemble a data packet in either ASCII or Hex characters. This is accomplished by selecting the Assemble packet window and choosing either ASCII (default) or Hex. Once selected, the data packet is assembled by typing in the desired characters.

The Line Status indicators

There are status indicators on the top left corner of the screen for monitoring the status of the RS-232 hardware flow control lines. Green indicates the line is asserted while black indicates de-asserted. The Break option is for engaging the serial line break. This can be accomplished by checking or asserting the Break option. Asserting the Break will place the DI line high and prevent data from being sent to the radio.

Modem Configuration tab

The Modem configuration tab has three basic functions:

1. Provide a Graphical User Interface with a radio
2. Read and Write settings to the radio's microcontroller
3. Saving or loading a modem profile

Reading a radio's firmware

To read a radio's firmware, follow the steps outlined below:

1. Connect the radio modem to the PC's corresponding port.
2. Set the PC Settings tab to the radio's default settings.
3. On the Modem Configuration tab, select "Read".

Making changes to a radio's settings

Once the radio settings have been read, they are displayed in three colors:

- Black – not settable or read-only
- Green – Default value
- Blue – User-specified

To modify any of the user-settable parameters, click on the associated command and type in the new value for that parameter. For ease of understanding a specific command, once the command is selected, a quick description along with its limits is provided at the bottom of the screen. Once all of the new values have been entered, the new values are ready to be saved to the radio's non-volatile memory.

Writing parameters to the Radio

To write the parameter changes to the radio's non-volatile memory, click on the Write button located on the Modem Configuration tab.*

* Please note that changes to the serial port speed settings will receive an error message. The radio modem serial port is at that point operating at the new speed.

Modem Profiles

SaTerm 1915 allows the user to save and write saved modem profiles or configuration to the radio. This function is useful in a production environment when the same parameters need to be set on multiple radios.

How to save a profile:

1. Set the desired settings within the radio's firmware as described in the Making changes to the radios firmware section
2. Click Save in the Profile section
3. Type in the desired name of this profile in the File Name box.
4. Browse to the location where you wish to save your profile
5. Click Save

How to load a saved profile:

1. Click on Load from the profile section
2. Browse to the location of the file and click on the desired file
3. Click Open
4. To save the loaded profile to the radio once you have loaded the file, follow the steps outlined in the Writing firmware to the radio section above.

For any additional questions call Satel-West,
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