SATELLINE-3AS Radio Modems

DIAGNOSTIC PING FUNCTION (SL+P command)

(available on the current HW / SW ≥2.21)

General

Diagnostic Ping, as an off-line feature, offers the user a tool for testing the performance of each radio link in the network. Proper operation of a remote radio modem and strength of received signal and its variation can be verified.

If processing and interpretation of messages is implemented to the application software, Diagnostic Ping operates as an on-line supervision feature in a system.

Operation

Function of Diagnostic Ping is based on a special SL+P command that is sent from the master modem out to the network. It is addressed to one of the remote radio modems which responses with measured signal strength value (see *Figure 1*).
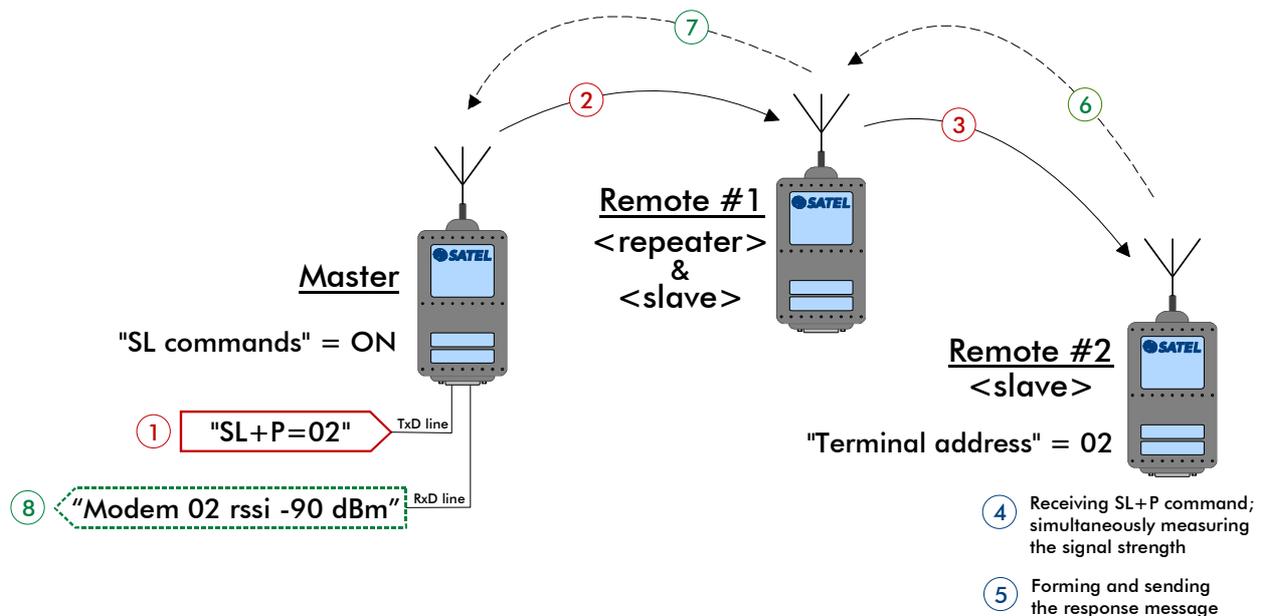
Figure 1.   *Operation of Diagnostic Ping function in an example network implementing Message Routing feature. ① SL command sent from a PC or another terminal unit to the master modem via the serial interface. ②-③ Command message is auto-routed to the specific remote radio, ④ which receives and simultaneously measures the signal strength as an average value of multiple samples. ⑤ Response message is formed and ⑥-⑦ sent back to the master radio. ⑧ Response message is printed out via the serial interface.*

The destination address in the SL+P command is either a "terminal address" of a remote radio set in Message Routing design, or a primary or secondary "Rx address" while system design is based on Tx/Rx addressing. For recognition, the parameter "SL commands" has to be set on for the master modem. Please refer to SATELLINE-3AS(d) or SATERM user guide for more detailed information about radio modem configuration. In case the 'repeater-only' modem will be pinged, it has to be given an own terminal address in Message routing setup. Please note also that later modem software versions require the SL+P command to be terminated by a <CR> or <CR><LF>.

In addition, there are two other important things to be noted: 1) The "overhop function" is disabled for SL+P command transmissions over the Message Routing network. And 2) The length of the address must be the same in SL+P command as is the definition in project properties of Message Routing design.

Application with SATERM software

If the operation procedure of Diagnostic Ping is not implemented to the application software, SATERM program run on a PC can be used. The following procedure can be used also for demo purposes. The procedure below applies to radio modem network configured for Message Routing.

1. Cut off supply voltage of the master radio modem.

2. Connect your PC and a 12 or 24 Vdc power supply to the master radio modem as shown below.
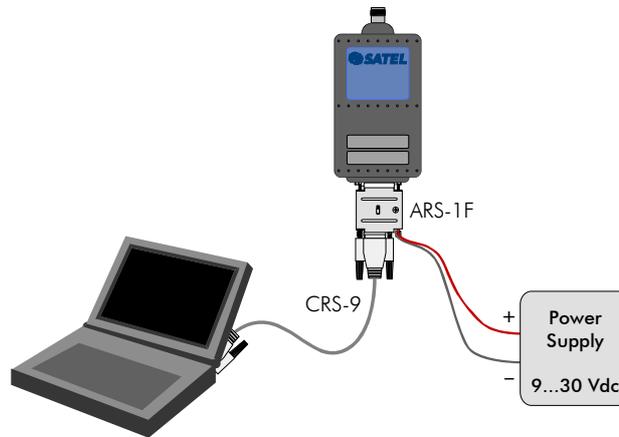
3. Start the PC, and SATERM program.

4. Select *"Mode > Open terminal"* at menu bar.

5. Before terminal window is opened, serial port parameters are requested. Set the parameters to match the settings of the radio modem.
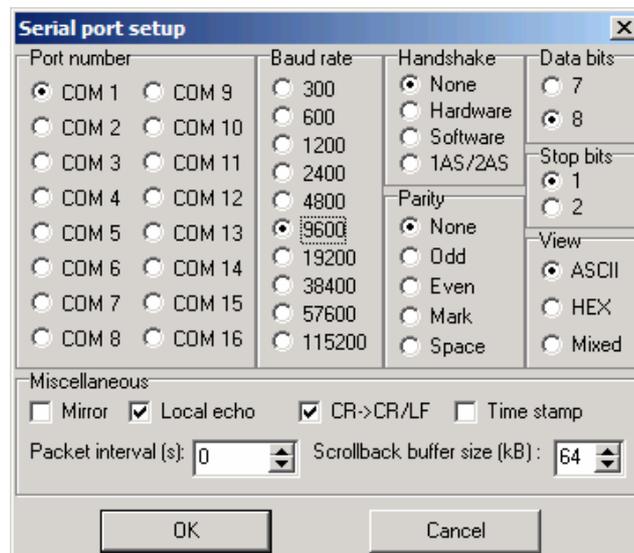
6. After the terminal window has opened, select *"Mode > Transmit"* for transmit window. Write the command "SL+P=xxxx" to the text box. "xxxx" is the "<u>terminal</u> address" of the radio modem at the remote station, of which radio connection is tested. "xx" is written as an ASCII string to the command, but the digits tell a hex value of the address. The value shall be identical to the value given in message routing setup. Set also options *"Put CR/LF to end"* and *"Continuous"* on. Delay before the next sending is set to 2.0 sec. (The minimum possible delay depends on the number of repeaters on the route to the remote modem.)
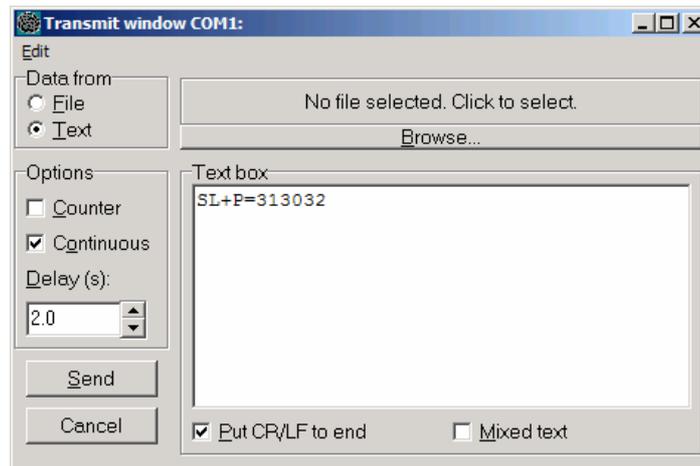
7. Specify the file where the communication will be saved, by "Mode > Log file .."

8. Start the test with the "Send" button

9. In the terminal window, it will appear (text saved to a file, too)

    - first the SL command sent out to the master modem (echoed locally by Saterm)

    - then "ok" returned after acceptance of the command by the master radio

    - and finally the signal strength value in dBm units returned by the remote modem (format is "Modem xx rssi –80 dBm"). If the value of –80 dBm is shown, the real signal strength may be –80 dBm or higher.

10. The test may be stopped by a click on the "Cancel" button in Transmit window.