U S E R ' S   G U I D E

RMSK-TRM8053-xxx-05

Radio Modem Starter Kit
Development Tool for Y-Lynx Wireless modules

2011 Apr

Contents

IMPORTANT NOTICE

Documentation updates
Since Y-Lynx products are constantly evolving to meet customer needs, some technical information may differ from those described in this document. Please refer to our web site at www.y-lynx.com to obtain the latest documentation available.

Recommended reading
Other useful documents can be found on our web site www.y-lynx.com

Communication Controller version
Communication Controller software revision: rev1.06

1. GENERAL INTRODUCTION

1.1 Introduction

This first chapter contains general information that will be useful to know before using the - RMSK - Radio Modem Starter Kit environment for the YLX-TRM8053-xxx-05 radio modem.

1.2 About this Guide

This document describes how to use the Radio Modem Starter Kit to develop and test wireless application based on the Y-Lynx Radio Modem, YLX-TRM8053-xxx-05. The manual layout is as followed:

Since the Starter Kit and other Y-Lynx tools are constantly evolving to meet customer needs, some PC-GUI environment dialogs and/or tool descriptions may differ from those in this document. Please refer to our web site at www.y-lynx.com to obtain the latest documentation available.

Chapter 2: Overview and Installation - How to install the hardware and the software provided with this kit.

Chapter 3: Interface board Overview - A hardware description of the kit.

Chapter 4: Graphic Interface Overview - A description of each parameter embedded in the Graphic Interface.

Chapter 5: Tutorial - A tutorial on using the Y-Lynx Radio Modem Starter Kit (RMSK) for YLX-TRM8053-xxx-05 Radio Modem.

Chapter 6: Troubleshooting - How to solve common problem with the RMSK operations.

1.3 Recommended Reading

This user's guide describes how to use the RMSK-TRM8053-xxx-05. Other useful documents can be found on Y-Lynx web site www.y-lynx.com.

2 OVERVIEW AND INSTALLATION

2.1   Introduction

This chapter gives you an overview of the RMSK-TRM8053-xxx-05 and then explains how to install the system hardware and software

2.2   What is the RMSK-TRM8053-xxx-500

The Radio Modem Starter Kit is designed to allow developers to evaluate and experiment with Y-Lynx solution for wireless sensors network. The Radio Modem Starter Kit (RMSK) provides two wireless nodes (2 x YLX-TRM8053-xxx-05) to create a simple two-node network. If required, additional nodes may be purchased to expand the network.

The RMSK, combined with the radio modems, allows multiple operational configurations and users can develop rapidly their own applications thanks to the kit.

This document covers the set-up and operation for the RMSK-TRM8053-xxx-05 environment.

2.3   RMSK-TRM8053-xxx-05 Kit Components

The development kit contains the following items (Figure 2.1):
   1) 2 x Interface boards
   2) 2 x Radio Modems (YLX-TRM8053-xxx-05)
   3) 2 x Half wave dipole antennas
   4) 2 x AC Power adapters
   5) 2 x USB Serial Cable
   6) 1 x CDROM with Test/Configuration utility software and User's Manuals
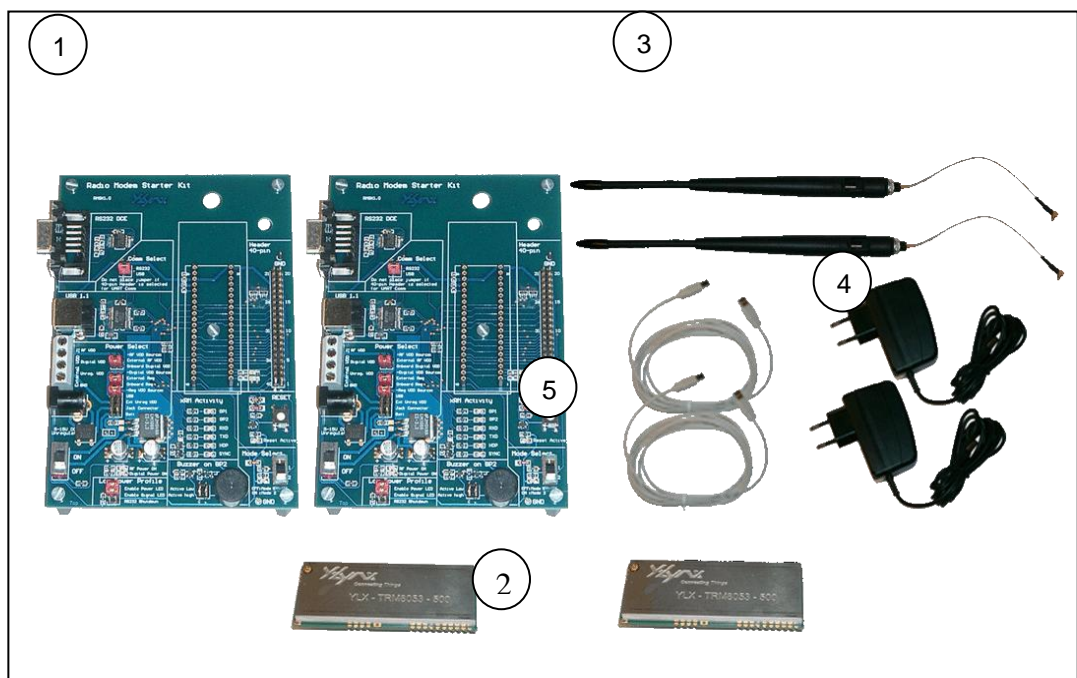
2.4   RMSK-TRM8053-xxx-05 – "Graphical User Interface" Software

Install

To install the RMSK-TRM8053-xxx-05 software perform the steps given by the installer (please note that these steps are general guidelines and procedures may vary depending on individual user PC WINDOWS™ configuration and WINDOWS™ OS software.

3 GETTING STARTED WITH THE RMSK-TRM8053-xxx-05

3.1   Introduction

After installing the RMSK-TRM8053-xxx-05 software and before to use the kit, the hardware needs to be installed carefully.

3.2   RMSK Interface Board

The development kit, RMSK-TRM8053-xxx-05, has all of the features necessary to begin developing industrial wireless application using the Y-Lynx, YLX-TRM8053-xxx-05 Radio Modem.

The Interface board provided can be used with a standard PC interface (RS232 or USB) to operate the radio modems and to help in the system integration. The Figure below shows a layout of the board.
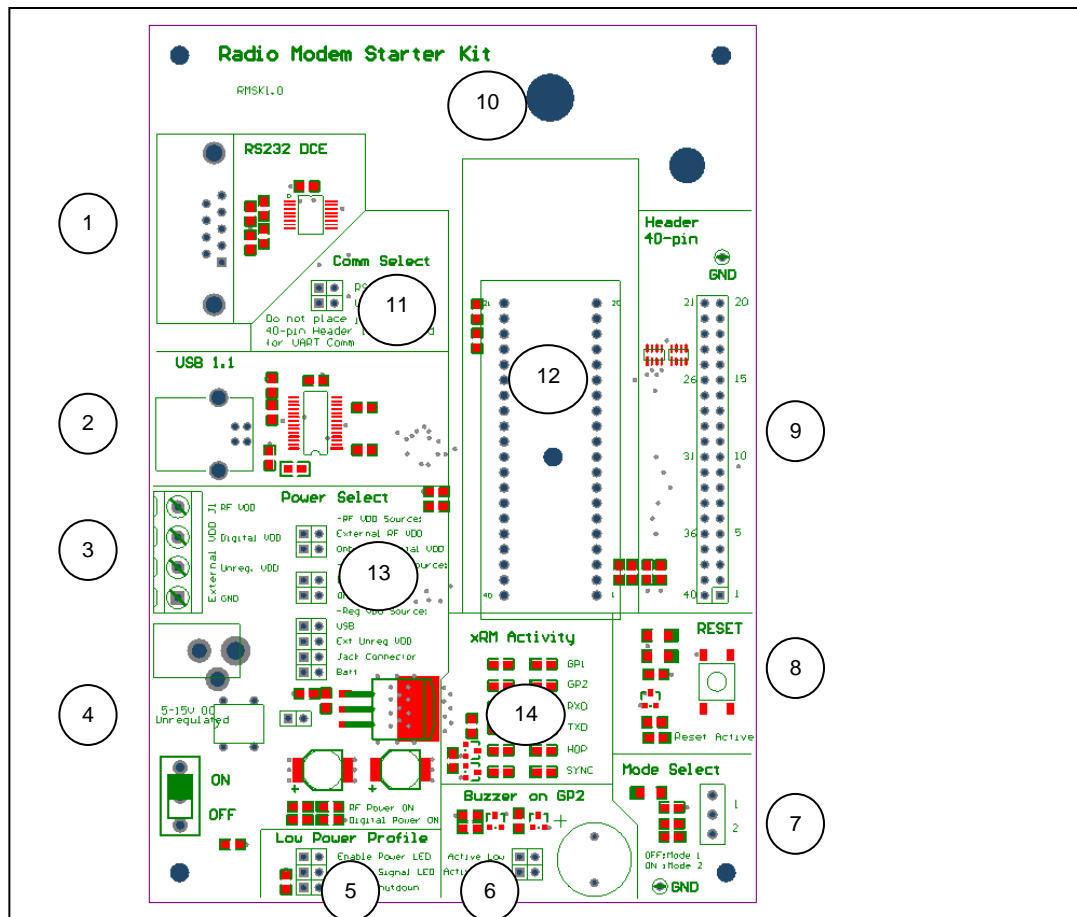
Features on the Radio Modem Starter Kit interface board include:

1. **RS232 (DB9F) Connector:** This connector allows the interface board to be connected to any other board or PC serial port. The Y-Lynx radio modem can use this connector to communicate with the PC and offers application configuration options.

2. **USB Connector:** This connector allows the interface board to be connected to a PC USB port. The Y-Lynx radio modem can uses this connector to communicate with the PC and offers application configuration options.

3. **Power Supply Block:**
Normal Condition: 2.4V min - 3.6V max
Reset Condition : 2.7V min - 3.6V max

The power supply block offers different way to power the interface board.
   a.   **RF VDD:** Power directly the YLX-TRM8053-xxx-05.

   b.   **Digital VDD:** Power the RMSK interface board but also the digital part of the radio modem. This source is not regulated on board. A high power level can destroy either the kit or the radio modem.

   c.   **Unreg VDD:** This power source is used to connect an unregulated power source. The regulation will be made via an on board regulator.

   d.   **GND:** Ground input.

4. **Jack Connector:** The RMSK interface board can be powered by an external 7.5V/1200mA power AC adapter included in the kit. The power ON/OFF switch is located down to the jack connector.

5. **Low Power Profile:** To reduce the current consumption during a range test or to measure the current consumed by the radio modem, the user can disable three options.

   a.   Green LEDs used to indicate that the radio modem is well powered (RF Power On and Digital Power On)

   b.   Yellow LEDs used to show the radio modem activity (xRM Activity).

   c.   RS232

6. **Buzzer on GP2:** One of the General Purpose Input Output can be linked to a buzzer to perform an audio alarm. The buzzer on GP2 can be used during a range test to confirm the radio communication with the remote radio modem.

7. **Mode Select:** The Mode Select slide switch is used to enter in Configuration Mode (position 2). When the configuration mode is enabled, a yellow LED switches on. In position 1, the Mode Select slide switch set the radio modem to the normal mode, the data present on the UART are considered as data to be transferred through RF and not as commands.

8. **RESET:** The Reset button allows the user to reset both the RMSK interface board and the YLX-TRM8053-xxx-05 radio modem. When active a red LED switches on.

9. **Header 40-pin:** A 40-pin connector representing the 40 pins of the radio modem that allows the user to debug but also to interface his application with the YLX-TRM8053-xxx-05 radio modem. This connector is pin to pin compatible with the radio modem. For more information on the 40 pins connector please refer to chapter 3.3 and to the related radio modem datasheet, YLX-TRM8053-xxx-05 datasheet.

10. **Antenna Connector:** Half wave dipole antennas are included in the kit.

11. Com Select: A two position jumper is used to select the communication port.

   a.   Up position: RS232 communication port enabled
   b.   Down position: USB communication port enabled

12. Radio Modem connector: This connector is used to connect the YLX-TRM8053-xxx-05 radio modem. Connections are provided for power supply, UART signals and few discrete digital I/O control signals.

13. Power select: The RMSK offers multiple sources of power supply

14. xRM Activity: Indicator lights are placed on the RMSK interface board to monitor the activity of the wireless node. Note, that LEDs are mounted with a pull-up structure. For more information on the signal significations, please refer to the YLX-TRM8053-xxx-05 radio modem datasheet.

LED – GP2	Depends on the user mapping
LED – GP1	Depends on the user mapping
LED – RXD	Shows UART Activities. From the radio modem to the external environment
LED – TXD	Shows UART Activities. From the external environment to the radio modem
LED – SYNC	Is used by the radio modem to inform that the node is synchronized with the beacon Server
LED – HOP	Is used to inform that the radio modem is hopping

3.3   40 Pins Connector

The development kit, RMSK-TRM8053-xxx-05, offers the possibility to connect an external microcontroller thanks to 40-pin connector. For that, few precautions must be taken on pin 10, 39 and 40.

Radio Modem Pin Number	Signal Name	40-pins Connector Pin Number	Comments
1	GND	1	Ground
2	GND	2	Ground
3	VCC	3	Digital Power supply 2.4V – 3.6V
4	VCC	4	Digital Power supply 2.4V – 3.6V
5	RESET	5	Reset. Active Low
6	CS*	6	SPI – Chip Select
7	MOSI*	7	SPI – Master Out (Slave In)
8	MISO*	8	SPI – Master In (Slave Out)
9	SCLK*	9	SPI – Serial Clock
10	CONFIGURATION / DEFAULT	10	Configuration Enable. Active Low Reset to default configuration at the power-up To drive this signal from the 40 pins connector placed the Mode Select slide switch (7) on Mode 1 position.
11	HOP	11	Pulses high when the module is hopping
12	SYNC	12	Active high when a client is synchronized with a server
13	GP1**	13	General Purpose I/O
14	GP2**	14	General Purpose I/O
15 -18			
19	GND	19	Ground
20	GND	20	Ground
21	GND	21	Ground
22	VCC	22	Digital Power supply 2.4V – 3.6V
23	VCC	23	Digital Power supply 2.4V – 3.6V
24	GND	24	Ground
25-30			
31	GND	31	Ground
32-35			
36	BAT_LEVEL	36	Input to the Battery Level Detector
37	AINT	37	Application Interrupt
38	TINT*	38	Terminal Interrupt
39	RXD	39	UART – Receive Data - Remove the Jumper *Comm Select* (11) to communicate through the 40 pins connector
40	TXD*	40	UART – Transmit Data - Remove the Jumper *Comm Select* (11) to communicate through the 40 pins connector

* Pull-up on RMSK
** Pull-up on RMSK when VCCLED jumper is present

4 GRAPHIC INTERFACE OVERVIEW

4.1 Introduction

After installing the RMSK-TRM8053-xxx-05 software, you are ready to launch the PC application

4.2 RMSK Interface Board

The RMSK-TRM8053-xxx-05 PC-GUI consists of a single fixed screen. The screen is presented to easily allow the user to manipulate the radio modem commands.
The Host Settings page is divided into three primary areas as shown in the screen shot below.

Figure 4.1: Host Settings page layout

Note: The actual PC-GUI presentation may differ as new features and updates are added regularly to PC-GUI software.

A brief description is:

(A)   Main Menu Bar with Control and Application mode
(B)   Product reference (Select YLX-TRM8053-xxx-05)
(C)   Serial port interface configuration

4.3   Configuration Page Layout

The configuration page is used to read, modify and save all the settings of the radio modem. This page is sub-divided into four submenus per radio modem connected to the PC.

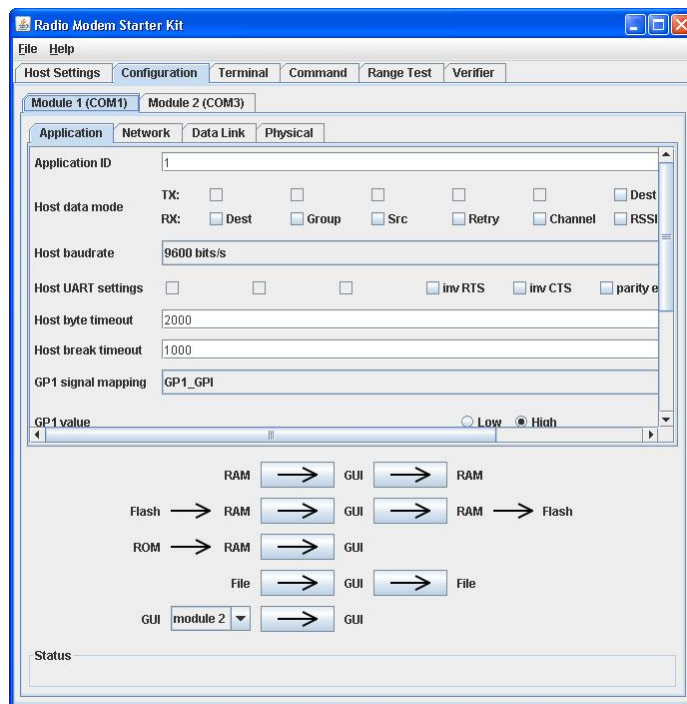- Application
- Network
- Data Link
- Physical

Figure 4.2: Configuration page layout

To read or write the radio modem parameters, the Mode Select slide switch (Figure 3.1, item 7) needs to be set in position 2 on the Starter Kit, (the Mode 2 is enabled if the yellow LED is on).

To update the Configuration page with the ROM, Flash or RAM content of a radio modem currently connected to the PC, click on the desired arrow:
- Update from RAM and displayed to the GUI
- Update from Flash to the RAM and displayed to the GUI
- Update from ROM to RAM and displayed to the GUI
- Update from file
- Update from another module file to the GUI (available only if two or more modules are connected)

After making changes to the radio modem's parameters on the Configuration page, the desired arrow can be pressed to save those changes: The configuration page offers several operations:
- Write from GUI to the RAM memory
- Write from GUI to the RAM and to the Flash

- Save to a file

On the Physical page, the user can modify the table frequency used by the radio modem for multi-hops applications, by opening the frequency pop-up window.
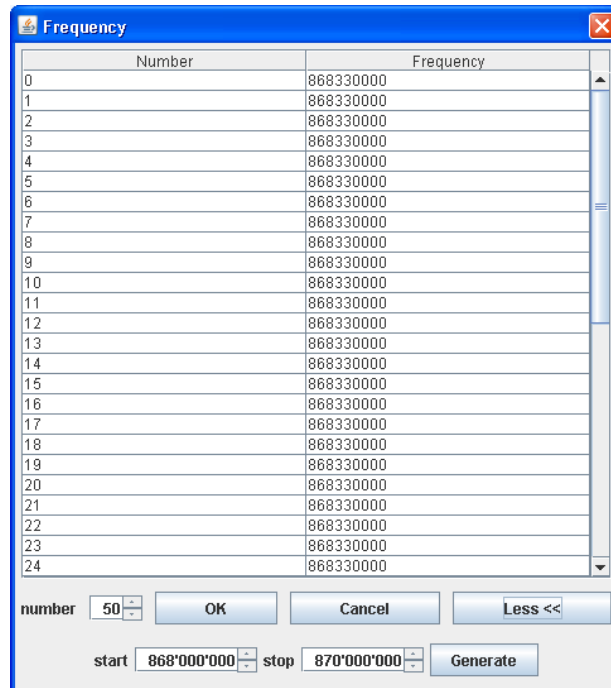

Figure 4.3: Frequency Table

The table frequency described above is used by the radio modem for the hopping sequence. The table frequency is configured as follow:
- Click on Generate button
- Select the number of frequency, for example 50
- Select the Start frequency
- Select the Stop frequency
- Then click again on Generate to generate automatically the frequencies value.

It's also possible to enter manually the frequencies or to modify the generated frequencies by clicking directly on the frequency line.

4.4   Terminal Page Layout

The Terminal page is used to send data to the destination address, set in the Configuration page. On the screen, a "Data to send" field and a "Log" field are displayed for each module connected to the PC. In the following example, two modules are connected to the PC.

The Terminal page is used to send small data packets between two or more units connected to a PC. An example of the Terminal page is shown below. The destination address and other parameters are set in the configuration page.

To be able to transmit and receive data, radio modems need to be set in normal mode (set the Mode Select slide switch in position 1).
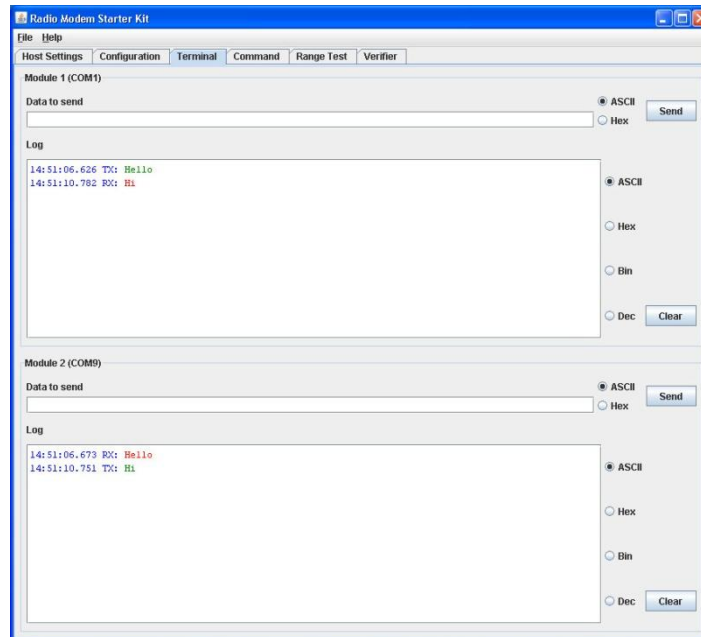

Figure 4.4: Terminal page layout

All fields can be displayed in different format (ASCII, HEX, Bin or Dec). Two buttons per module are used, one to send the "Data to send" field by RF and the other to clear the log window.

The user has also the possibility to send data through the Command mode. Use the command SEND_DATA (0xD2) followed by the data frame. To complete the frame, the message length will be added before the command; as described below: <length><SEND_DATA><data>. The Mode Select slide switch needs to be set in position 2.

4.5   Command Page Layout

The Command page is used to set / read commands to the radio modem on the selected port. The list of commands is split in four groups: Physical Layer – Data Link Layer Utility – Network Layer – Application.
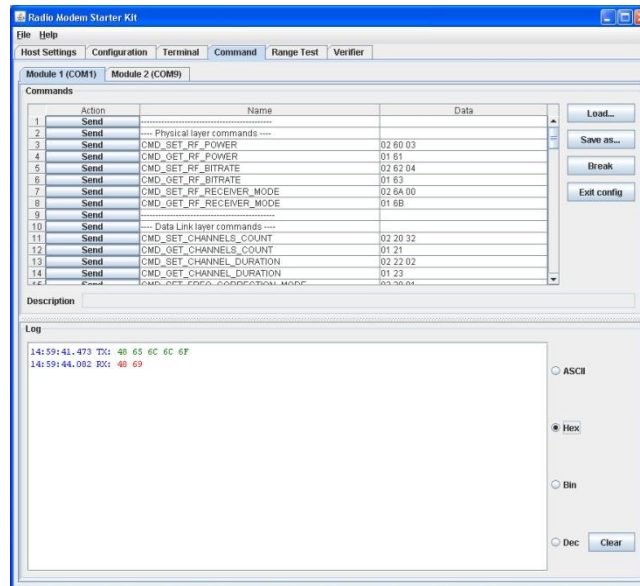
Figure 4.5: Command page layout

🖊️ ***Important Note:***

The selection between the Command Mode and the Data Mode can be made through two different ways.

1 - The Mode Select slide switch must be set in position 2, to transmit commands to the radio modem a yellow LED switches on.

2 – The Command Mode can be activated by sending a "Break" condition, for that click on "Break" command button and then click on "Send" button of the desired command. If more than one command needs to be sent the user can enable the option "Send Break before the command" from the File menu tab.
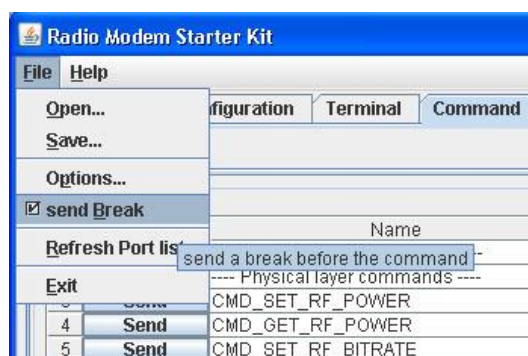
A command can be send by clicking on the "Send" button next to the Command name. The PC-GUI sends only one command at a time. The command name is not restricted and is not required by the application. Click on the command name to edit and modify the label. The Data box is the command itself, displayed in hexadecimal format, which will be sent to the radio modem. Click on the data parameters to change the command arguments. To define a new command, click on an empty data box and enter a new command with correct parameters.

The command organisation can be modified by clicking and maintaining the cursor on the command number. The user can also add a personal description for each command by filling the "Description" box.

The list of commands can also be saved to a file with the button "Save as…" and loaded with the button "Load…".

The Log windows displayed data/command sent to the radio modem (in green) or received from the radio modem (in red).

4.6   Range Test Page Layout

The "Range Test" page layout is used to establish a communication over few kilometers but also to have vision of the RF channel quality. The screen gives an overview of the network architecture when two modules are connected to a PC. The synchronisation frame sent by the server is also displayed and allows the user to have a better understanding of "Who do what".
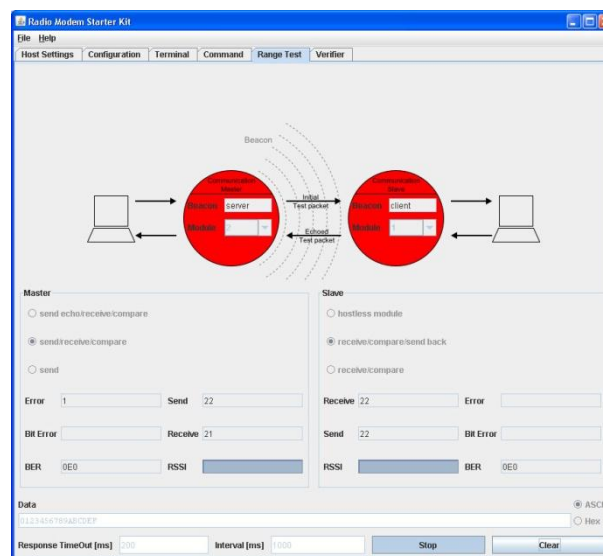

Figure 4.6: Range Test page layout

Three kinds of range tests can be done:
- Send echo / receive/ compare (used if only one node is connected to a PC)
- Send / receive / compare
- Send only / receive only / compare

The range test application is based on a typical point to point communication. A data frame is sent by one radio modem (can be server or client) and receive by the other one. The Range Test layout displays the number of frame sent and received by each unit, and the number of errors. The user can configure the message to send and also the interval between messages.

4.7　Verifier Page Layout

The "Verifier" page layout is used to verify the compatibility between two modules. After having selected the two modules to test, click on "Check" button. Automatically, the GUI will read the configuration of each module and will determine if the two configurations are compatible.
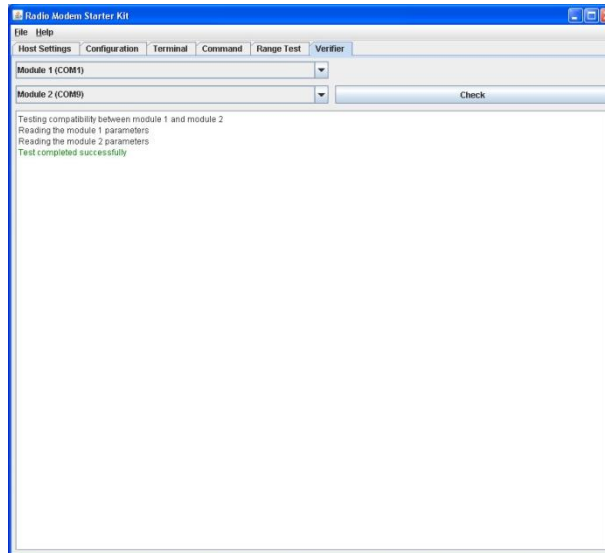

Figure 4.7: Verifier page layout

5 TUTORIAL

5.1   Introduction

The objective of this chapter is to achieve a radio communication between two nodes. To facilitate the demonstration, the two nodes will be connected on the same PC. The same demonstration can be done with two separated PC.

5.2   Using the RMSK for the first time

5.2.1   Assembling RMSK nodes

The RMSK consists of two wireless nodes. Each node consists of one interface board and one radio modem packaged separately. The user must assemble each before applying power.

Perform the following steps to prepare each node:
1. Carefully plug the radio modem into the 40 pins connector on the interface board (see figure 3.1, item 12). Note that the connectors on the interface board and the radio modem are polarized and will not allow incorrect insertion.

2. Select the desired power source by positioning the jumper accordingly with the label on the interface board (see figure 3.1, item 13). Then connect the power source to the interface board.

3. Select the desired communication port by positioning the jumper accordingly with the corresponding label (See figure 3.1, item 11). Then connect the communication cable (USB or RS232) to the interface board.

4. For demonstration purpose, place jumpers on the two following sites to enable the Power LED and the Signal LED (See figure 3.1, item 5).

5. Verify that the slide switch "Mode Select" is on the up position (Mode "1" is enabled), see figure 3.1, item7.

6. Slide the power switch to the ON position (See figure 3.1, item 4). Verify that the two green LEDs, "RF Power On" and "Digital Power On" are lighting on.

5.2.2   Running the RMSK software

The RMSK PC-GUI software contains a complete list of commands available with the radio modem in order to achieve a point to point or point to multipoint radio communication.

Perform the following steps to achieve a point to point communication:
1. Invoke RMSK software by executing the shortcut located in the desktop or in the start menu.

Figure 5.1: Main page

2. Select the YLX-TRM5053-xxx-05 product (drop list)

3. On the **Host Settings** Page
After launching the RMSK software, the Host settings page appears. On this page perform the following steps to configure the host.
   a. On the "Number of modules" dropping list, select **2**
   b. Select the com port name, the dropping list displays all the available com ports.
   c. Verify that the com port is configured as follow:
       Baud Rate: 9600
       Data bits: 8
       Parity: None
       Stop Bits: 1
       Flow Control: None

4. Click on **Configuration** to access to the configuration page and open the com ports.

> ✏️ **Important Note:**
> Perform steps 5 to 7 on both RMSK board.

5. On the RMSK interface board, slide the "Mode Select" switch on the position 2 to have access to the configuration mode. A yellow LED switches on. Then click on "Configuration" menu in the tool bar
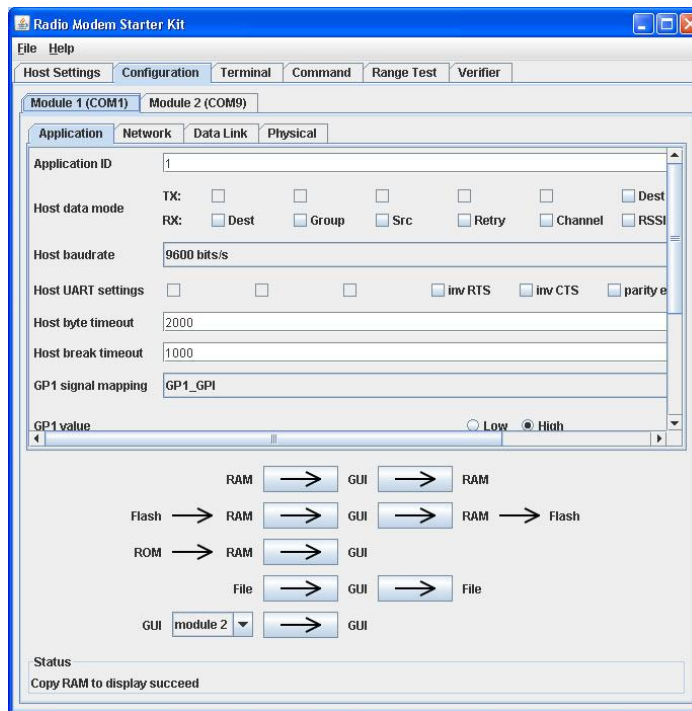

Figure 5.2: Configuration window

6. After that, click on ROM->RAM->GUI button to display the default configuration.

Figure 5.3: Read Progress window

7. On the configuration page, select the **Data Link** sub window. Verify that the address header is well configured.
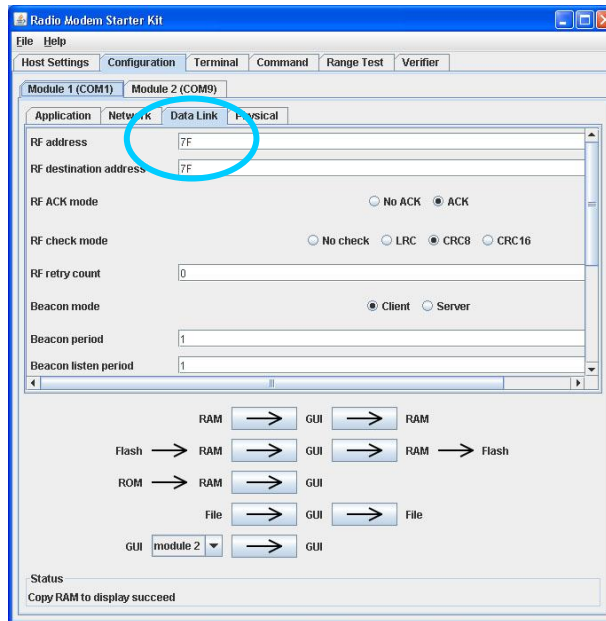

Figure 5.4: Data Link sub-window

For the demonstration purpose the address header is configured by default with the following values:
- RF address of the node: 0x7F
- RF destination address: 0x7F

Verify on the **Application** page that the address is well configured
- Application ID: 0x01

Verify on the **Network** page that the address is well configured
- Network ID: 0x3F

Note: the RF address of the node and the RF destination address are identical. It will not cause any problem for point to point communication. If the user wants to achieve a point to multipoint communication, the RF destination address must be set accordingly.

> **Important Note:**
> Perform step 8 on only one RMSK board.

8. To achieve a proper radio communication with the YLX-TRM8053-xxx-05, one node must be set in Server. The server will send regularly a synchronisation frame called "beacon".
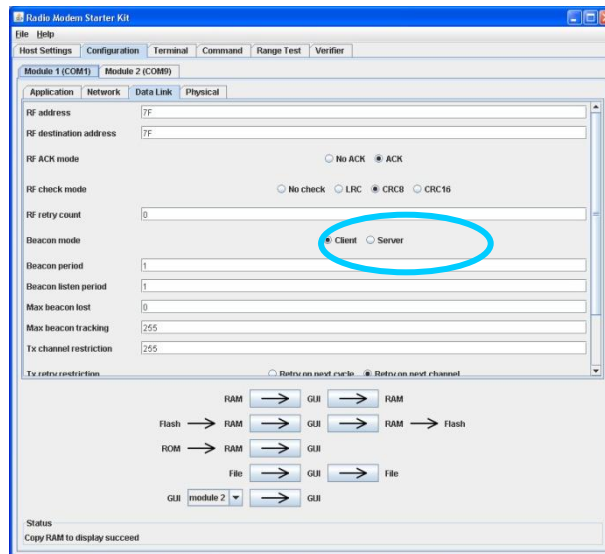

Figure 5.5: Configuration of one Node in server

On the **Data link** menu of the module 1 only, enable the Server option on the Beacon mode menu followed by GUI->RAM->Flash to update the modifications.

> **Important Note:**
> Set the slide switch "Mode Select" on the up position (Mode "1" is enabled).

The user can observes LEDs's activities on the interface board. The synchronisation LED (SYNC) and the hopping channel LED (HOP) are blinking very fast (but can not be observed). On the client node, the SYNC signal indicates that a server is in the range and the beacon signal has been well received. The HOP signal goes high at the beginning of a time slot and goes low at the end of the slot (during the idle mode).

For more information on the two signals, please refer to the YLX-TRM8053-xxx-05 datasheet.

9. At this stage, one node has been configured as server and the other as client. The configuration phase is over, slide the "Mode Select" switch button to position 1 to enable the normal mode. The associated yellow LED switch off.

10. The user can now, start a communication between the two nodes. First, Select the **Terminal** page. In the "Data to send" window of the module 1, enter the data that will be sent and then click on "Send" button. The sent message appears in green in the log file of the module 1 (the transmitter) and in red in the log file of the module 2 (the receiver). Do the same operations with the module 2 by sending a message to the module 1.
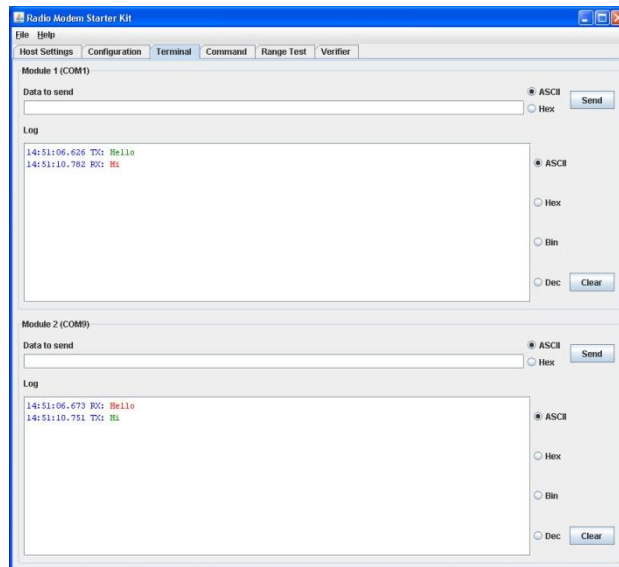

Figure 5.6: Example of communication through the Terminal page

11. By using the **Terminal** Page, a two-ways radio communication has been established

12. The user has also the possibility to use the **Command** page to test the node. Slide the Mode Select switch on position 2 and verify that the yellow LED is on to enter in the configuration mode. Then, click on send button of the following command: **CMD_GET_VERSION**. In the log window, the version answered by the radio modem is displayed.
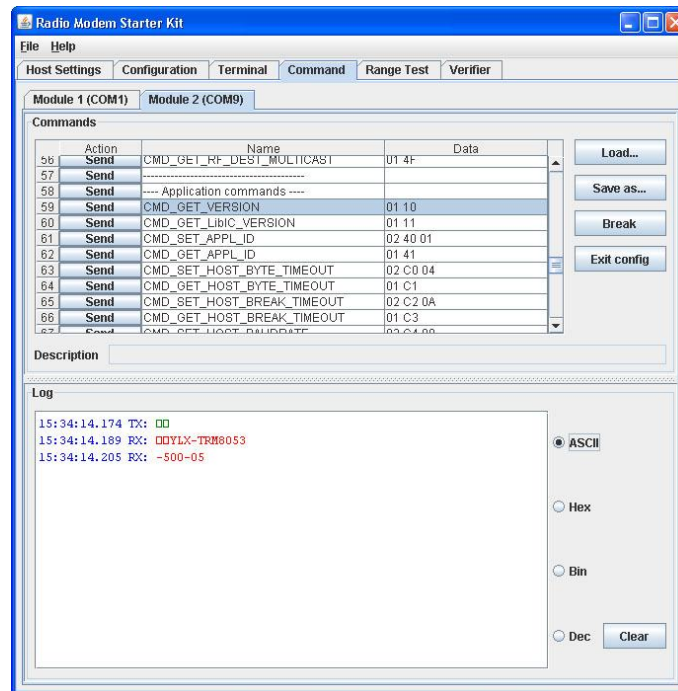

Figure 5.7: CMD_GET_VERSION response

13. To achieve a range test between the two nodes, the user needs to configure the **Range Test** page as following:

   - On the two RMSK boards. Select **Mode 2**; with the Mode Select slide button, do not press RESET button, because it will be interpreted as a Default reset and it will load the default configuration.
   - Select Server, Module 1
   - Select Client, Module 2
   - Select the type of range test: Send/receive/Compare on the Master window

      The server (module 1) sends the beacon but also starts the radio communications, the client (module 2) sends back the received RF message to server.
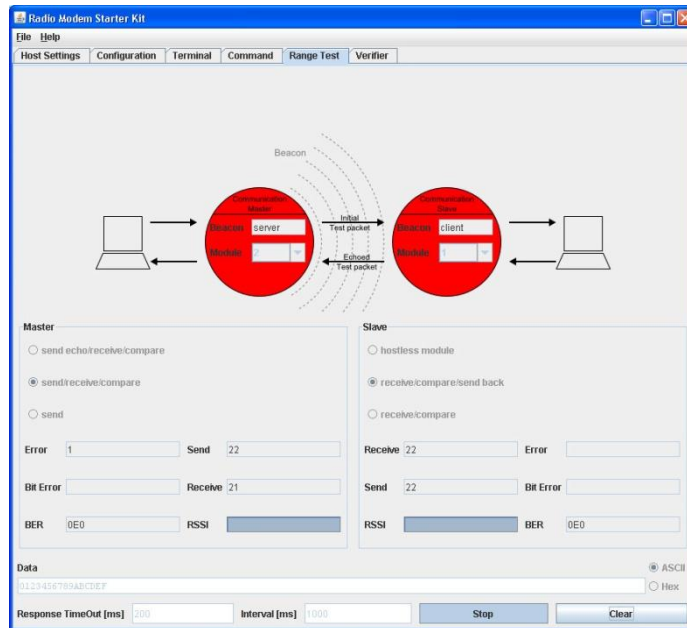
Figure 5.8: Setting of the Range test page

To start the range test click on the Start button, the range test will start automatically. The user can modify the data packet, by default the frame is fixed to "0123456789ABCDEF". To modify the frame enter directly the new frame in the Data window.

When the range test starts, the number of sent packets is incremented on the Master window and on the Slave window if the reception is correct. Then the slave send back the received message to master.

Thanks to the range test application, an estimation of the RF channel quality can be done. Several indicators are available to qualify the channel:
- Error: corresponds to the number of erroneous frame
- Bit error corresponds of the number of erroneous bits
- BER (Bit Error Rate) corresponds to the number of erroneous bits on the total of transmitted bits
- RSSI: Received Signal Strength Indicator (Bar graph)

The user can also modify the timing used during the range test
- **Response Timeout**; time between a transmission and a reception, generates a timeout if no response as been received or received too late.
- **Interval** between two transmissions in ping mode (send continuously) or between a reception and a transmission in ping pong mode.

14. After having validated the range test settings between the two nodes on one PC, the user has the possibility to achieve a range test between a PC and a remote node.

- Select **Hostless module** on the slave window
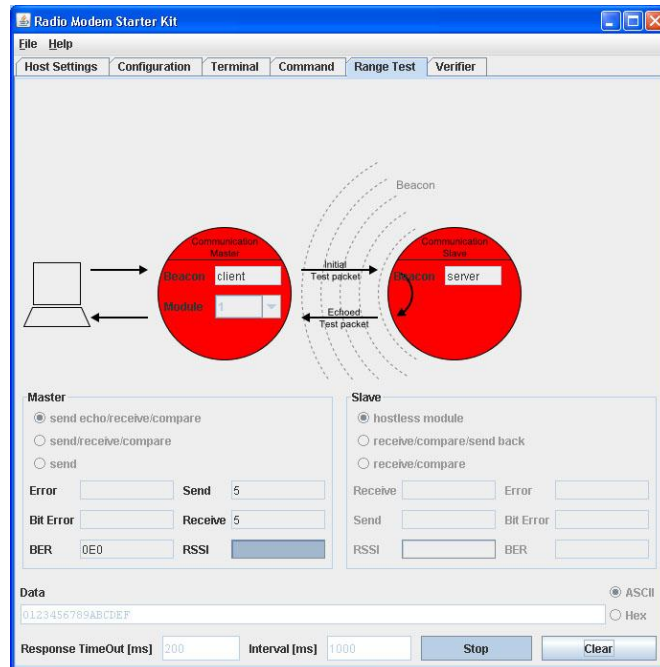
15. If the communication port selected by the user is USB, click on **Host Settings** and select "**1**" for the number of modules. This operation will close one USB port. Verify that the node connected to the PC is attached to right USB port. The other node can be removed from the PC.
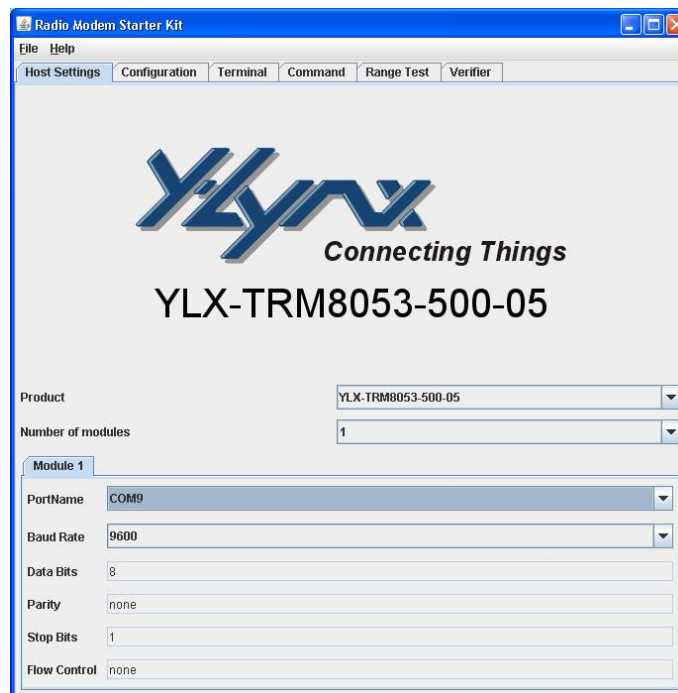
16. Return on the **Range Test** window and start again the test.
   - On the Client node, the Sync LED is on if the node is in the range of the Server.
   - On the PC, the number of sent frame increments as well as the number of received frame, if the RF communication is good.
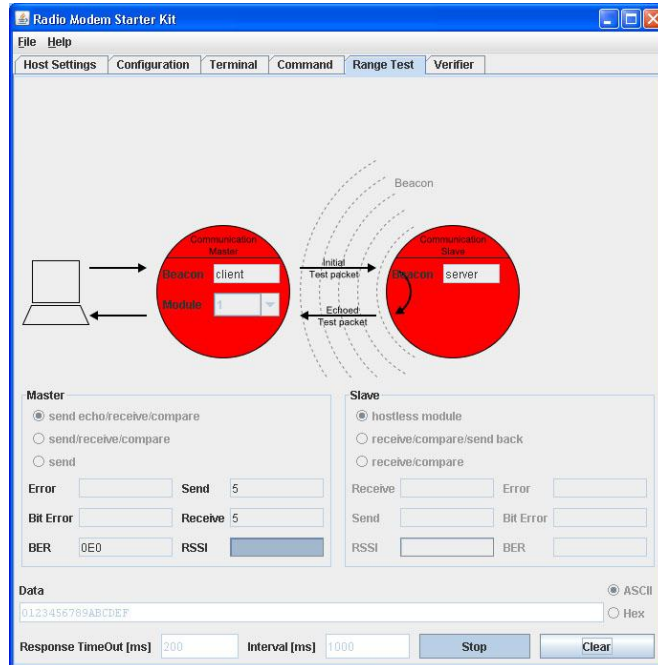
6 TROUBLESHOOTING

6.1 Introduction

This chapter discusses common operational issues and how to resolve them. Topics covered in this chapter include:

- Common issues
- Operating Mode versus Mode 1-2

6.2 Introduction

1. *When I power up a node, the LEDs are not lit.*
   The primary reason for this issue would be the lack of power and/or incorrectly configured.

   Check the RMSK interface board:
   - Verify that the jumper "Enable Power LED" is in placed.

   - If using the external power supply module:
     - ✓ Verify that the power supply is plugged in and the wall outlet has power.
     - ✓ Verify that jumpers are correctly set.
     - ✓ On board Digital VDD
     - ✓ On board Reg
     - ✓ Jack connector

   - If using power block
     - ✓ Check that voltage is available at the block
     - ✓ Verify that jumpers are correctly set:
       - External RF VDD: If two different power supply sources are connected to the block
       - On board Digital VDD: if only one power supply source is used for the RF and the digital
       - External Reg, if the source is already regulated with the correct voltage and current level (min 800mA).
       - On board Reg and Ext Unreg VDD: if the power supply source is not regulated and if the voltage is too high for the radio modem (max 3.6V).

   - If using Batteries
     - ✓ Verify that the batteries is fully charged and correctly plugged.
     - ✓ Verify that jumpers are correctly set
       - On board Digital VDD
       - On board Reg
       - Batt

2. *A RMSK node does not communicate with the host system.*
   The primary reason for this issue would be lack of power or incorrectly configured
     - ✓ Verify that the COM Select jumper is correctly set
     - ✓ Make sure that your terminal program set to use 9600bps, 8-N-1, no flow control

    ✓ Make sure that the radio modem is correctly plugged into the interface board

3. *The PC GUI does not display my USB COM Ports.*

    ✓ "Refresh the Port List" from the File menu tab
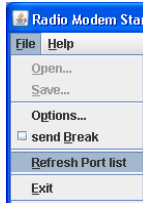
Or

    ✓ Close the RMSK PC-GUI Software
    ✓ Verify that the USB connector is correctly plugged
    ✓ Switch OFF and switch ON the RMSK interface board
    ✓ Launch the RMSK PC-GUI Software

4. *My new parameters are not being taking in charge by the radio modem.*
    After having loading the new configuration into the radio modem, be sure to switch back to the normal mode (Mode Select side switch in position 1). You can also press the reset button to validate the modifications and force the LibIC to start with the new configuration.

5. *I can not communicate with another node.*
    Y-Lynx radio modems are fully tested before to wrap in the kit, so the primary reason for this issue would be lack of configuration.
    ✓ Verify that MODE SELECT is set in normal mode (the LED is off)
    ✓ Verify that the destination address is correct on the RMSK PC-GUI software (Configuration -> Data Link page) and corresponds to the RF address of the other radio modem.
    ✓ Verify that the Application address is correct on the RMSK PC-GUI software (Configuration -> Data Link page) on both nodes.
    ✓ Verify that the Network address is correct on the RMSK PC-GUI software (Configuration -> Data Link page) on both nodes.
    ✓ Verify that antennas are well connected to the radio modems.
    ✓ Verify that radio modems are well powered and can communicate with a host (execute a GET_VERSION command to validate this point).

6.3   Operating Mode versus Mode 1 / Mode2

Here is a summary of GUI operating mode versus the slide switch **Mode Select**.

GUI Operating mode	Selected mode	
Configuration Window	Mode 2 enabled	Command Mode
Terminal Window	Mode 1 enabled	Data Mode
Command Window	Mode 2, enabled	Command Mode
Range Test Window	Mode 2 enabled	Command Mode

Buttons Operating Mode	Description	Loaded Parameters
Reset + Mode 1	Reset of the Interface board and Radio Modem	Flash Parameters
Reset + Mode 2	Reset with Default configuration	ROM parameters
Power up + Mode 1	Normal configuration	Flash Parameters
Power up + Mode 2	Default configuration	ROM parameters

Documentation History

Revision	Modifications	Date
Rev 1.3	- Compatibility with the new communication controller firmware	March, 2011
Rev 1.2	- Generic documentation for 500mW and 25mW 40 pins connector description	April, 2008
Rev 1.1	New functionalities available - Load configuration from one module to another one - Break condition - Verifier	January, 2008
Rev 1.0	Original version	December, 2006

Related Products and Documents

Related Resources

Description	Type of document
YLX-TRM8053-025-05	Data Sheet
YLX-TRM8053-500-05	Data Sheet
YLX-SWG-RS232-500-05-868	Data Sheet
LibIC5305 – Radio Communication Controller.	Reference Guide
Errata Sheet	See www.y-lynx.com for details

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