

The RCQ2-434 is a high performance wireless modem providing a reliable low cost serial data communications link that can be used for many data communications applications at an exceptionally competitive price.

The purpose of this evaluation kits is to verify all the features and technical characteristics about the Radio Modem RCQ2-434.

Use this document together RCQ2-434 datasheet.

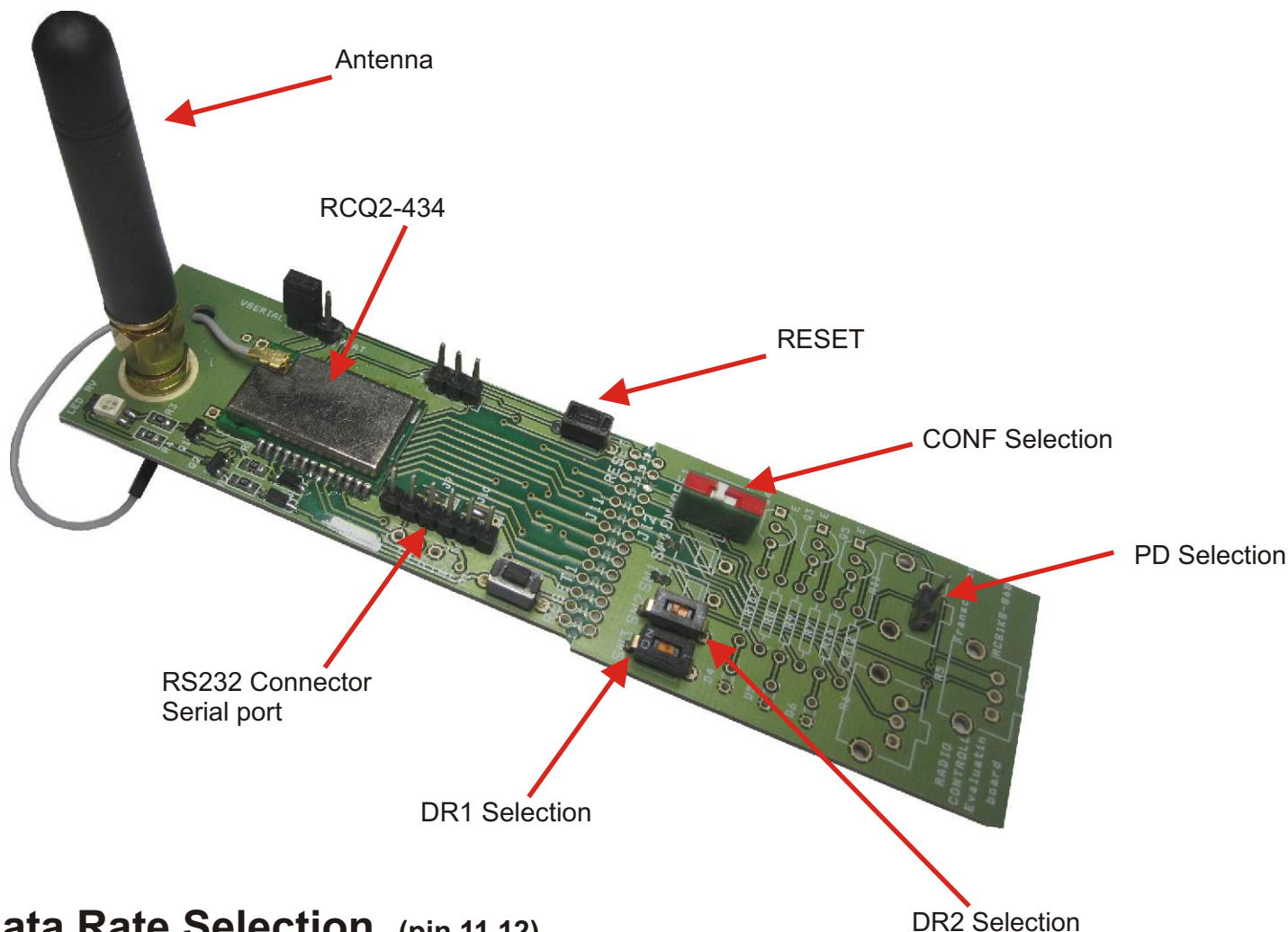
The Evaluation Kits is composed by :

- N. 2 Evaluation Board
- N. 2 USB/RS232 Adapter
- CD Documentation and Utility



1.0 Evaluation board description

Follow the description about the RCQ2-434 evaluation board.



Data Rate Selection (pin 11,12)

SERIAL PORT SETUP : 1 START, 8 BIT, 1 STOP, NO PARITY

DR1 Selection	DR2 Selection	Baud Rate
GND	GND	4,800
GND	VCC	9,600
VCC	GND	19,200
VCC	VCC	38,400

Every time you change the speed (baud rate) is necessary to RESET a device.

PD Selection (pin 7)

PD Selection JUMP = OPEN = Operativa Mode
PD Selection JUMP = CLOSE = Standby Mode

Conf Selection (pin 6)

Conf Selection = High = Operativa Mode
Conf Selection = Low = Configuration Mode

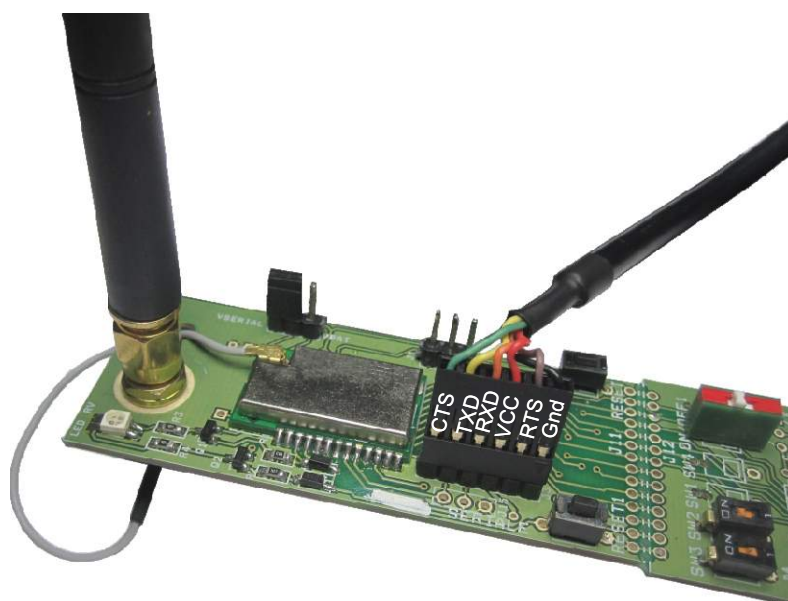
2.0 RS232/USB Adapter

USB / RS232 interface based on CP2102 Silicon Labs . Power : 3.3Volt .
Is possible download the software driver on the Radiocontrolli website .

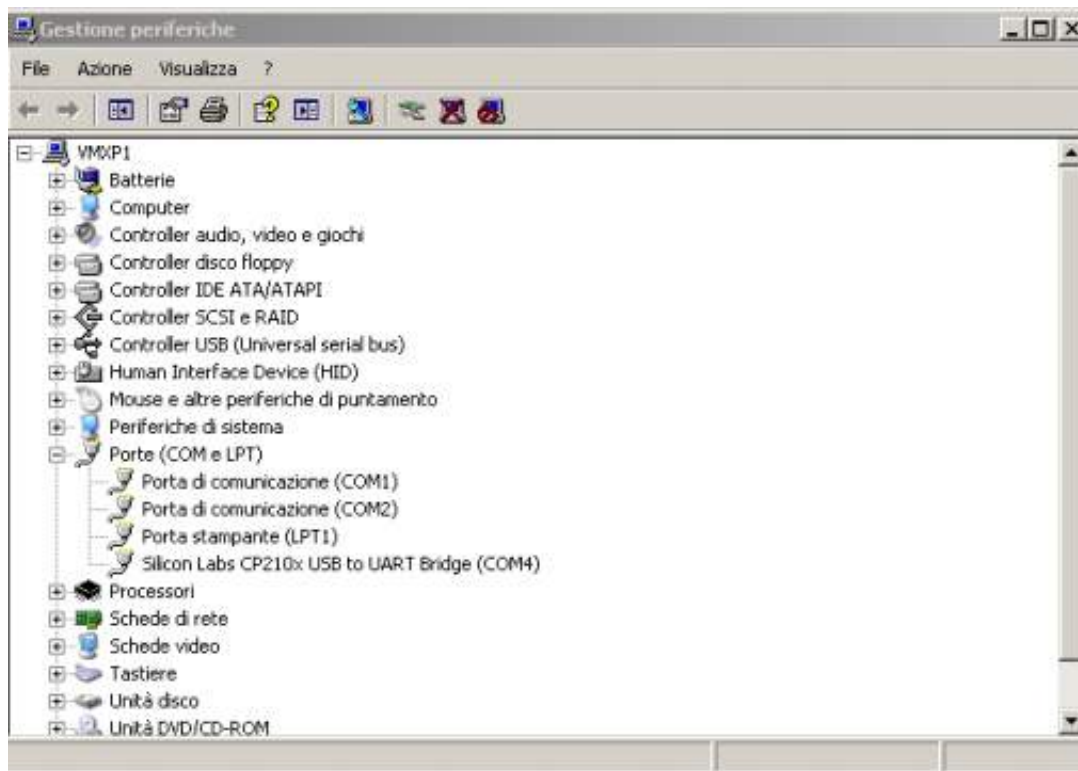


3.0 START- Configuration Mode

Insert the serial connector (USB-Serial adapter) on the evaluation board as shown in the picture below.



Insert the USB connector (adapter USB-Rs232) into a port on your PC and ensure that the driver of the USB device has been recognized by the computer and assigned to a serial port.

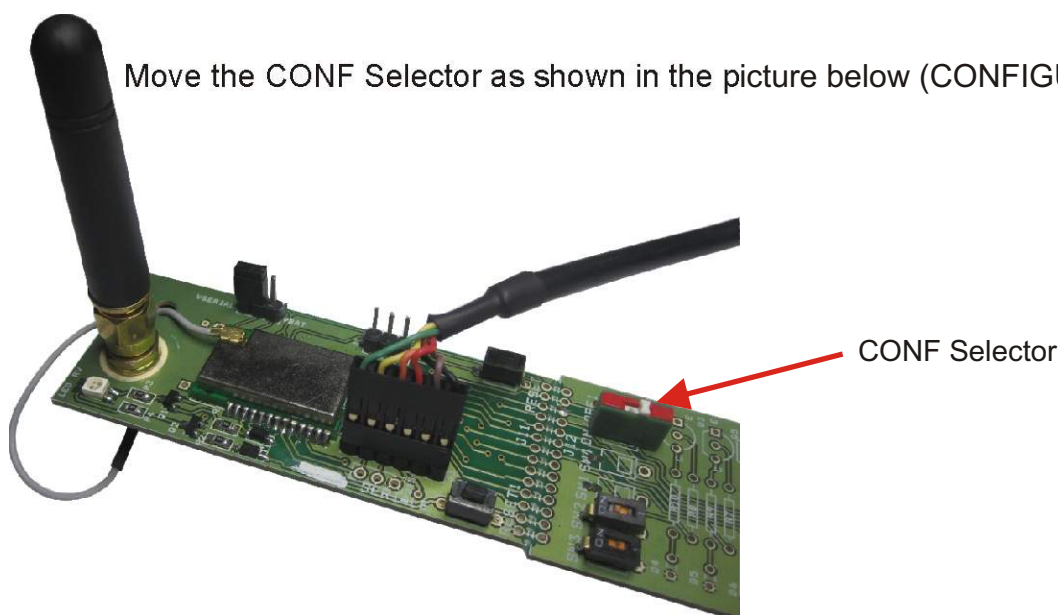


In this case. It was assigned to COM4.

You need to install the driver for the USB-Serial converter CP2102, this driver is contained in the package provided by RadioControlli or can be downloaded from the following hyperlink:

<https://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx>

(Versione x Windows)



Move the CONF Selector as shown in the picture below (CONFIGURATION MODE)

Configuration Mode Table

Byte	Name	Description	Default Value (HEX)	
0		MSB	7E	
1	Destination Address		7E	
2			7E	
3		LSB	7E	
4		MSB	7E	
5	RCQ2-868 Address		7E	
6			7E	
7		LSB	7E	
8	RF CHANNELS	6A =433.1 MHz 6B =433.2 MHz	72 = (433.9 MHz)	
		6C =433.3 MHz 6D =433.4 MHz		
		6E =433.5 MHz 6F =433.6 MHz		
		70 =433.7 MHz 71 =433.8 MHz		
		72 =433.9 MHz 73 =434.0 MHz		
		74 =434.1 MHz 75 =434.2 MHz		
		76 =434.3 MHz 77 =434.4 MHz		
		78 =434.5 MHz 79 =434.6 MHz		
	7A =434.7 MHz			
9	RF TX POWER	00 = 1 dBm (1.25mW)	00 = 1 dBm	
		01 = 2 dBm (1.58mW)		
		02 = 5 dBm (3.16mW)		
		03 = 8 dBm (6.3mW)		
		04 = 11 dBm (12.5mW)		<i>values outside the regulations It is recommended use this device in in accordance with the CEPT/ERC REC 70-03.</i>
		05 = 14 dBm (25mW)		
		06 = 17dBm (50mW)		
		07 = 20dBm (100mW)		
10	TX DATA PACKET SIZE		1E (30 bytes)	
11	RX DATA PACKET SIZE		1E (30 bytes)	

3.1 Example of Configuration

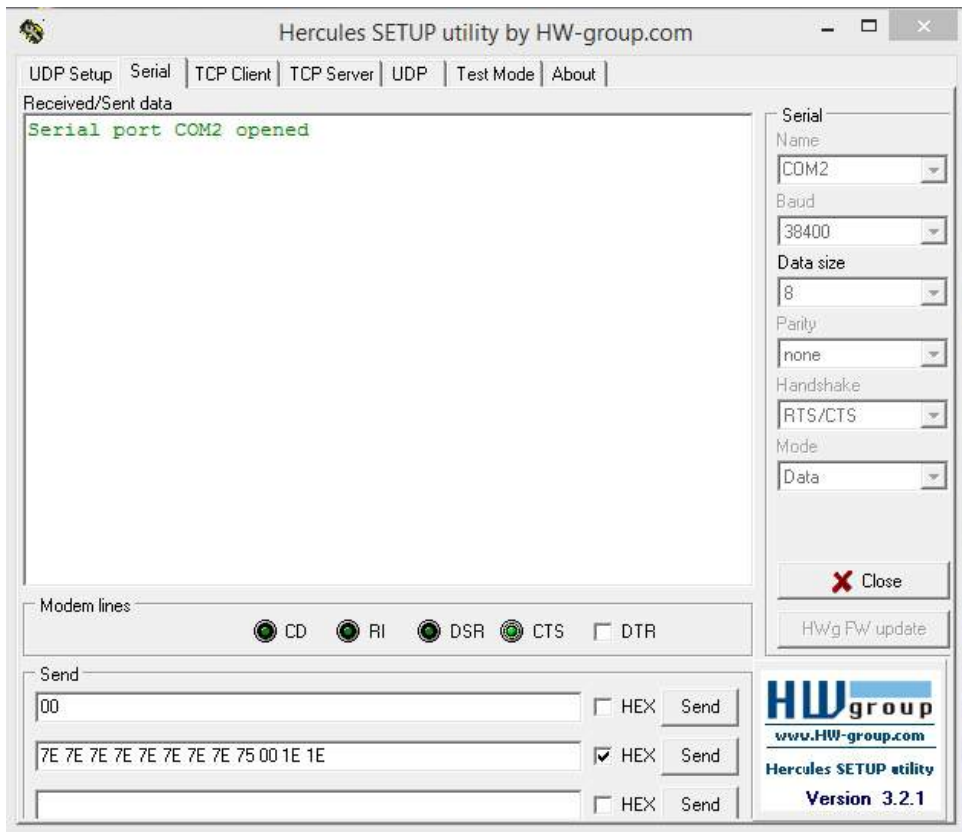
In this example we use the following software (FREEWARE) :

- Hercules Setup Utility

This utility is located in the package supplied by RadioControlli or you can download from the site www.hw-group.com.

Evaluation board in "CONFIGURATION MODE"

Software used: Hercules SETUP utility (FREEWARE)
(this utility is located in the package supplied by RadioControlli or you can download from the site www.hw-group.com).

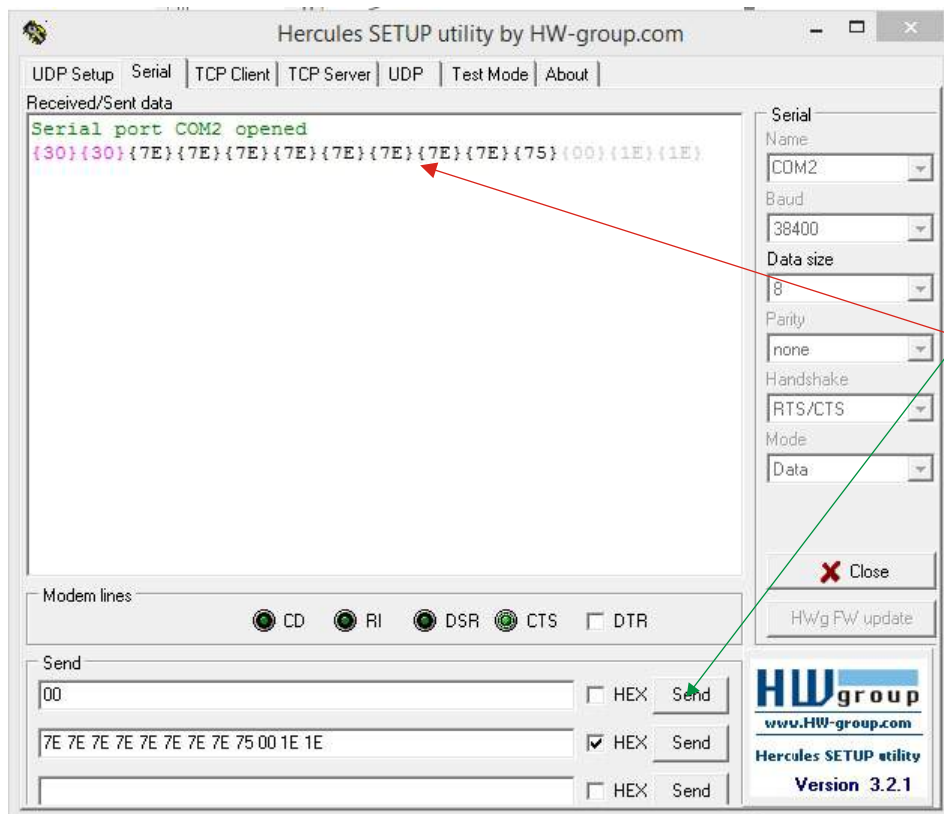


Open the serial port in this mode :

Set the Hercules software to receive hex characters

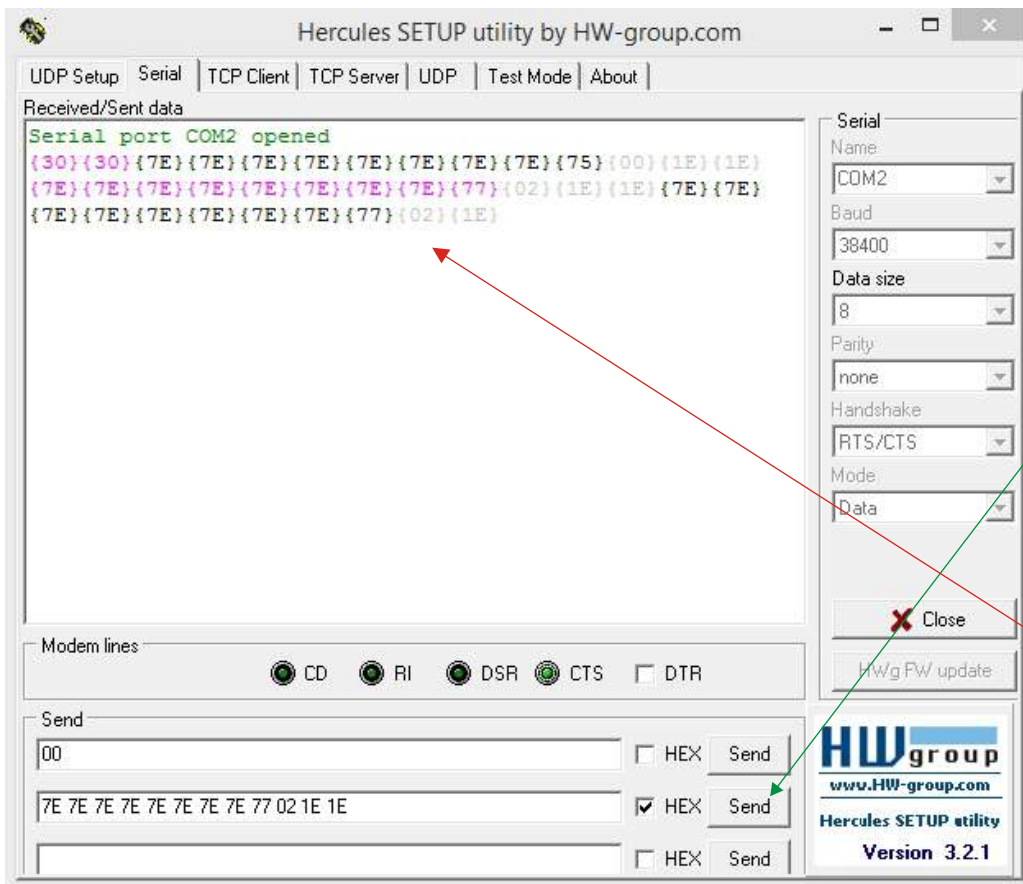
press the right mouse button on the main window, tick the Enable Hex.

Find the menu denominated "Special Chars" and choose Hexadecimal.



We hold this button, in this mode we sent "00" only 2 character

The module answer sent your configuration default parameters:
7E 7E 7E 7E 7E 7E 7E 7E 75 00 1E 1E



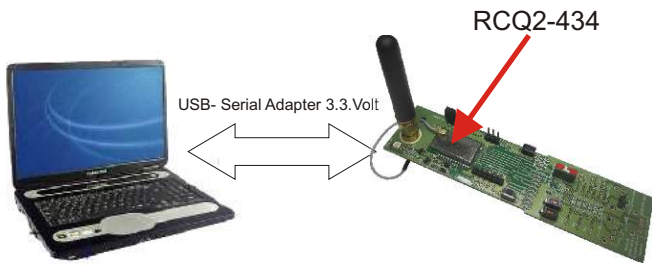
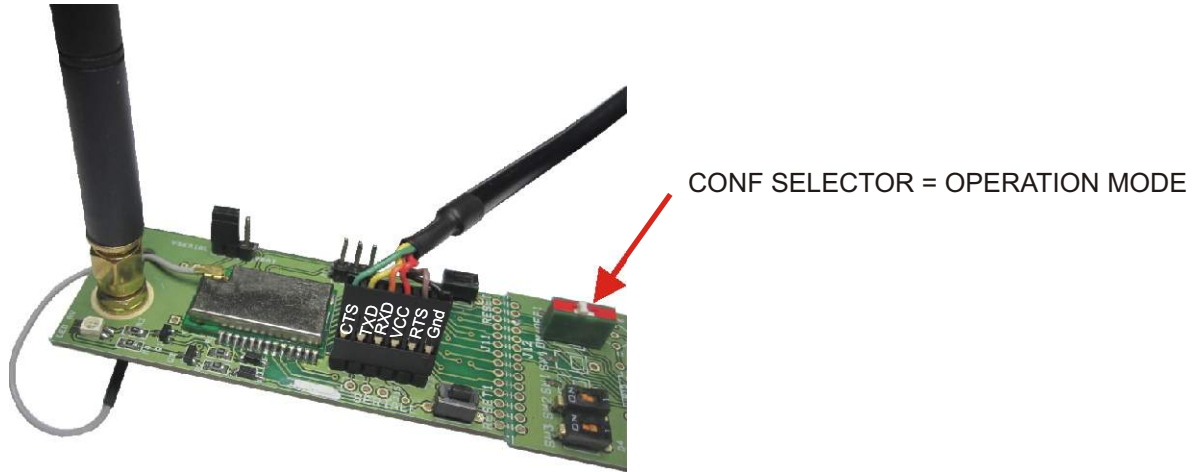
We hold this button, in this mode we sent the new Configuration String 7E 7E 7E 7E 7E 7E 7E 7E **77 02** 1E 1E (hexadecimal string) We have changed the parameters in red :

77 Frequency = 434.4 Mhz
02 RF Power Output = 5dBm

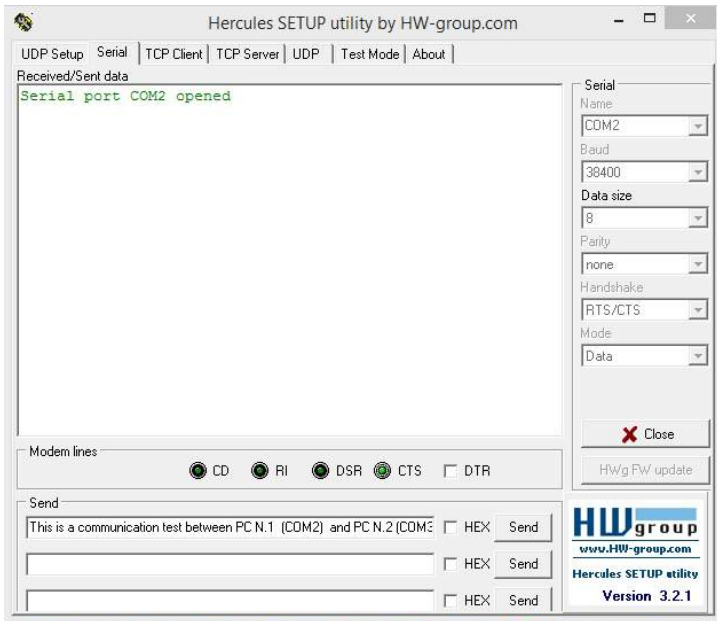
The module answer confirming the new configuration :
7E 7E 7E 7E 7E 7E 7E 7E 7E 7E **77 02** 1E 1E

4.0 Example of Operation Mode (One to One)

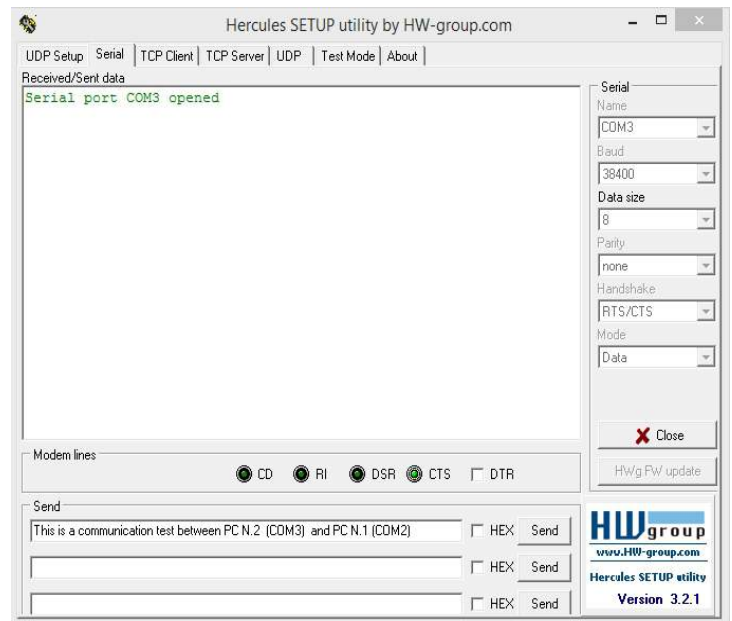
This example is performed according to the following schematics and using the software Hercules SETUP utility (free use).



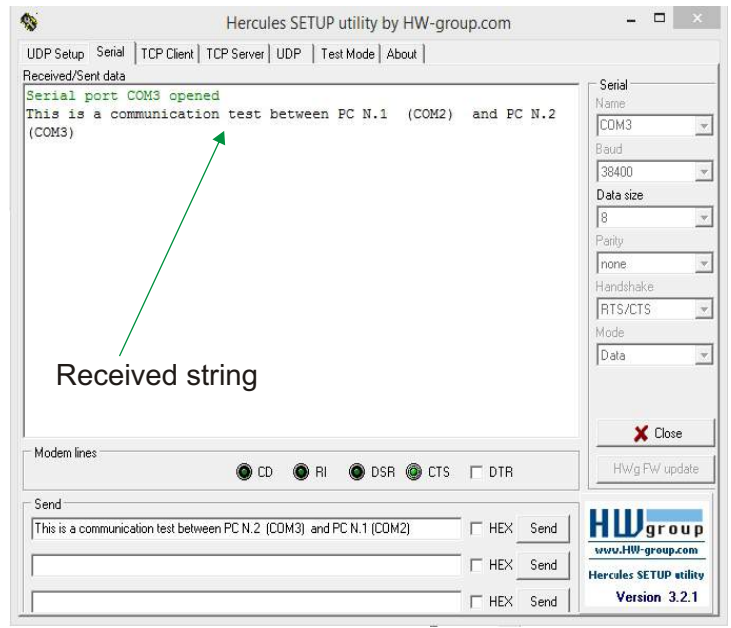
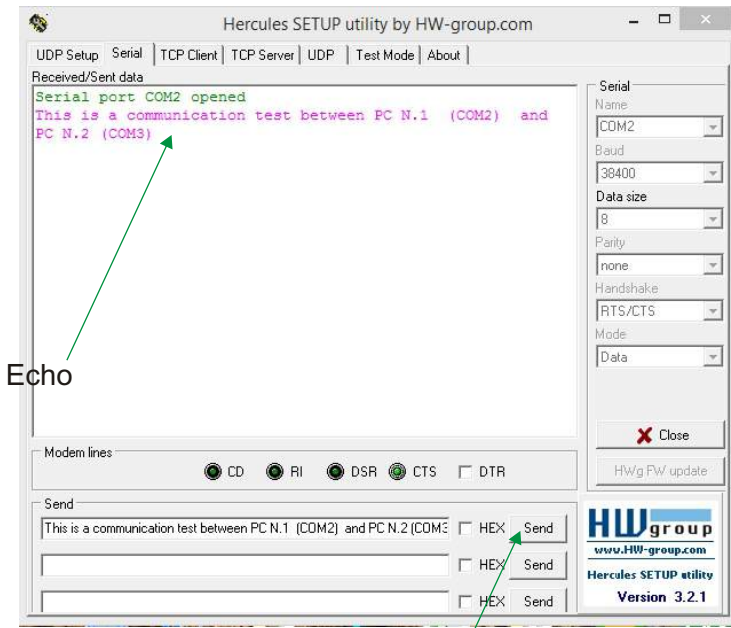
Personal Computer N.1 (COM2)



Personal Computer N.2 (COM3)

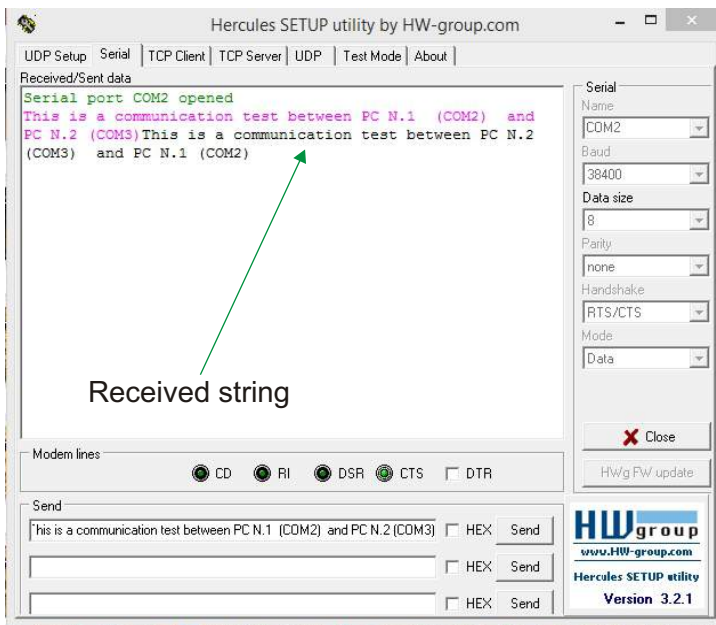


You can control everything..... everywhere

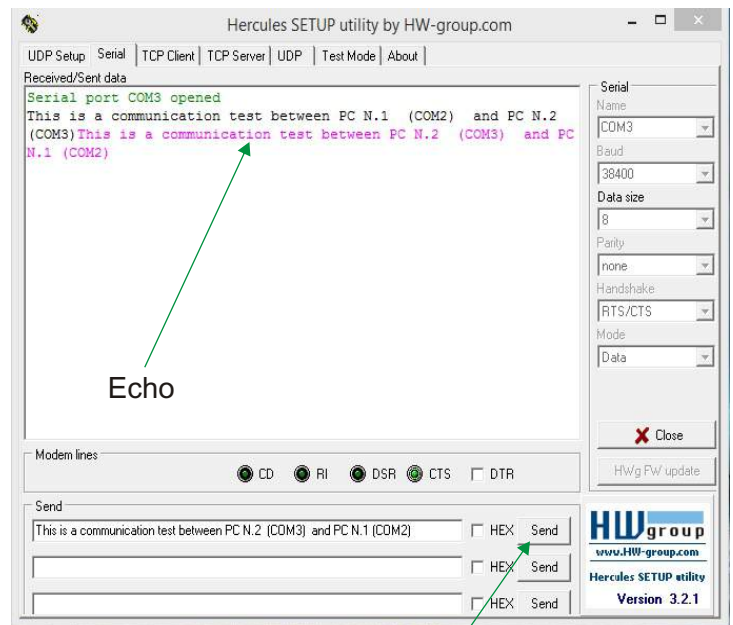


We hold this button, in this mode we sent the following string **“This is a communication test between PC N.1 (COM2) and PC N.2 (COM3)”**

Personal Computer N.1 (COM2)



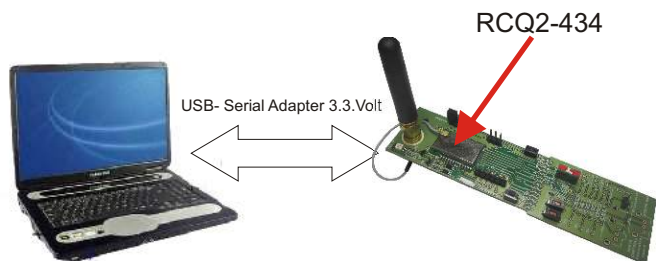
Personal Computer N.2 (COM3)



We hold this button, in this mode we sent the following string: **“This is a communication test between PC N.2 (COM3) and PC N.1 (COM2)”**

8.0 Example of wireless transfer files (One to One)

This example is performed according to the following schematics and using the Hyperterminal software (free use).



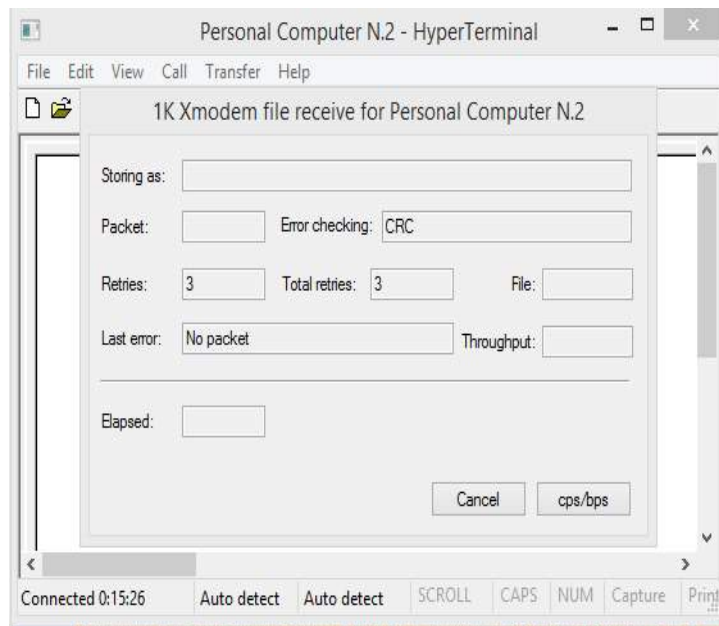
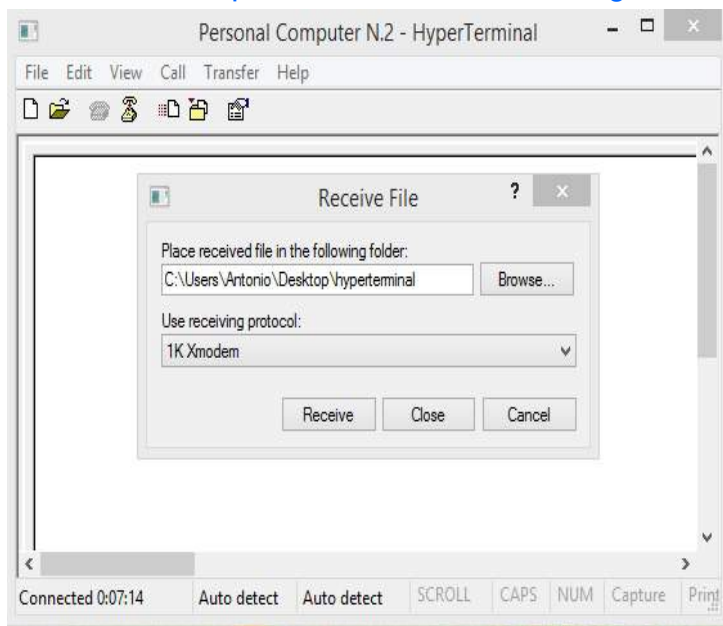
Personal Computer 1



Personal Computer 2

Open the Serial Port about Personal Computer N.1 and Personal Computer N.2 in the following mode : 38400, 8, N, 1, Hardware.

Personal Computer N.2 - Receiver Setting

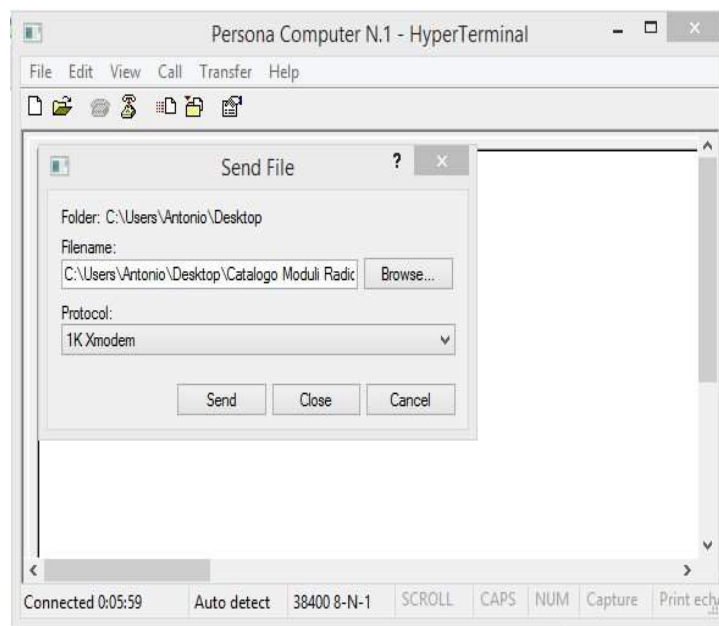
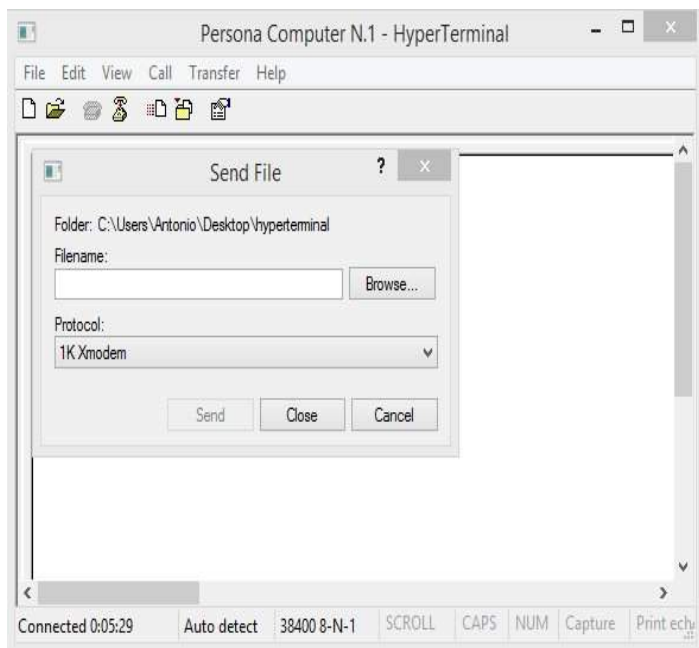


Menù Transfer ----> Receive Files -----> Select 1K Xmodem protocol

Press "Receive" button and insert file name.

The Personal Computer N.2 is ready to receive files from Personal Computer N.1

Personal Computer N.1 - Transmitter Setting



Menù Transfer ----> Send -----> Select 1K Xmodem protocol

Press "Send" button and choose the file to be transmitted.

In the picture below the Personal Computer N.1 is transmitting the file denominated : Catalogo Moduli Radio_1.pdf and the Personal Computer N.2 is receiving this file.

