

RXDL3 USB RADIO DATA LINK

Features

- Evaluation board for **RXQ3-XXX** transceiver
- USB connector for direct interface to PC
- Selectable 'Narrowband' RF Channels
- Signal LED of activity transmission
- USB Bus Powered: 4.0 to 5.25 V
- Host Data Rates up to 76.8 Kbps
- Very Stable Operating Frequency
- Operates from -20 to +70 °C
- Small Size: 76 mm x 19 mm



(RXQ3 transceiver is not included)

Applications

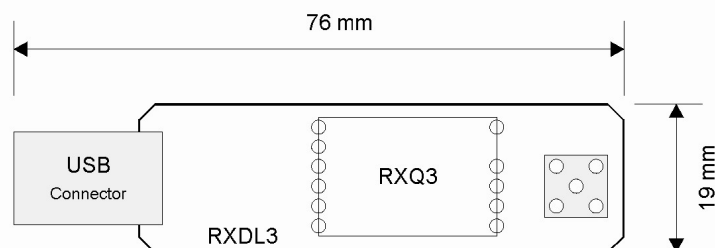
- Remote Control
- Remote Meter Reading
- Sensor Data Logging
- EPOS Terminals

Description

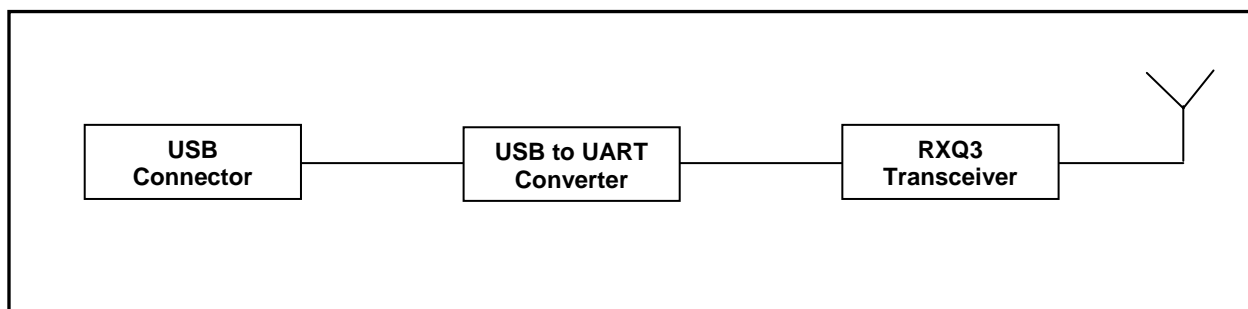
RXDL3 (USB Radio Data Link) is a demo board for the RXQ3 Smart Transceiver that provides an USB interface for direct connection to PC. It allows a quick testing and evaluation of the RXQ3 performance.

RXDL3 consists of a USB connector, USB to UART converter, 3.3V voltage regulator, SMA RF connector (not included), and a connector for the RXQ3 transceiver.

Mechanical Details



Block Diagram



Technical Specifications

- Absolute Maximum Rating**

Operating temperature: -20 °C to +80 °C
 Storage temperature: -40 °C to +100 °C
 USB Supply Voltage: 5.5V

- Electrical Characteristics**

	Min.	Typ.	Max.	Units	Notes
DC Levels					
USB Supply voltage	4.0	5	5.25	V	
Supply current (Transmit mode @ +10 dBm)		35		mA	
Supply current (Receive mode)		21		mA	
RF					
Working frequency : 433 MHz band 868 MHz band	430.0 860.0		440.0 880.0	MHz	1
Receiver sensitivity		-108		dBm	
Transmitter RF power out		+10		dBm	
Operating temperature	-20		+70	°C	

Note

- The application operating frequency must be chosen to comply with the Short Range device regulation in the area of operation.

Operation

Before using the RXDL3 adapter board, install on the PC the "CP210x VCP Win2K/XP/2K3 Driver" from Silicon Labs website at:

<https://www.silabs.com/products/interface/usbtouart/Pages/default.aspx>

Once the installation has been completed, open Device Manager from System applet in Control Panel. After inserting RXDL3 into a free USB slot, read in Device Manager the name of the COM port assigned to the adapter board for operation.

Use Hyperterminal or any equivalent terminal emulation program to access the transceiver. The serial communication should be configured as:

- Bits per second: 19.200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

RXDL3 adapter board is now ready for operating in Data Mode. To enter Command Mode use the escape sequence +++ . Configure the RXQ3 transceiver and save the configuration with the AT&W command. Then return to Data Mode by issuing the ATO command. For a complete description of AT commands refer to RXQ3 Reference Manual.

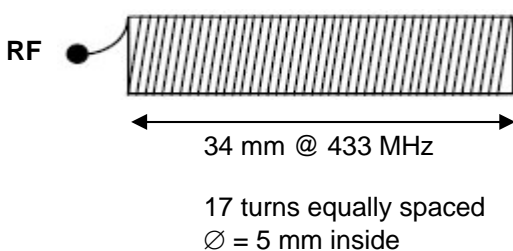
Antenna Design

The design and positioning of the aerial is as crucial as the module performance itself in achieving a good wireless system range. The following will assist the designer in maximizing system performance. The RF ground pin should be connected to a ground plane which should shield the aerial connection and the PCB layout around the aerial track itself should be such as to give a 50 Ohm impedance. The aerial should be kept as far away from sources of electrical interference as physically possible. The specified power supply decoupling capacitors should be placed close to the module as possible and have direct connections to the relevant pins.

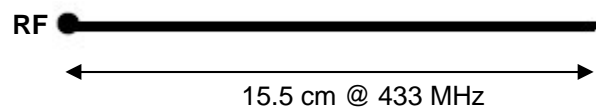
The antenna 'hot end' should be kept clear of any objects, especially any metal as this can severely restrict the efficiency of the antenna to receive power. Earth planes restricting the radiation path of the antenna will also have the same effect.

The best range will be achieved with either a straight piece of wire, rod or PCB track @ $\frac{1}{4}$ wavelength. Increased range may be achieved if this $\frac{1}{4}$ wave antenna is placed perpendicular to and in the middle of a solid earth plane measuring at least 16cm radius. In this case, the antenna should be connected to the module using 50 Ohm coaxial cable and the PCB track layout tips given above should be observed.

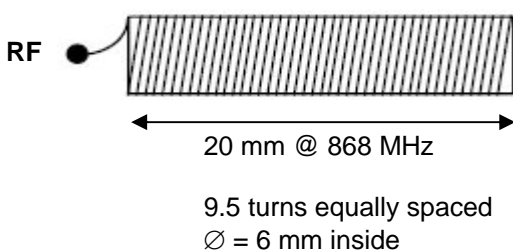
Helical Antenna



Whip Antenna



Helical Antenna



Whip Antenna

