

SKR3177S USB Dongle

“microSP” Receiver

434,350 MHz



Description

The SKR3177 Dongle is a multi-function USB wireless adapter that connects “USB” equipped desktop or notebook computers with “microSP” Technology wireless transmitters, sensors, alarms or tags. The SKR3177S is based on a patented “Direct Amplification Receiver” design as used also on the SPR27 and SPR97 “microSP” Rx modules series providing a plug-and-play receiving link via USB interface.

The Dongle can be used to connect a PC as a wireless node to the Wireless Sensor Network (WSN). But really its main purpose is to be used as a “Protocol Analyzer” and as a device for functional testing and diagnosis on wireless networks.

Interfaces

The device is connected either via a virtual COM port or directly via USB using the dedicated software.

The USB interface (FTDI FT230X) supports USB 2.0 (full speed) .

Technical Specifications

Rx frequency	434,35 MHz
Selectivity	300 KHz
Sensitivity	60 μ V/m
Modulation	PPM
USB data rate	115,2 Kbps
Operating voltage	USB 5V $\pm$ 10%
Consumption	25 mA
Operating environment	IP54 (indoor use)
Operating temperature	-25 +60 °C
Dimensions	80x23x15 mm

Regulatory Statements

The SKR3177 is a Short Range Devices designed to operate on the 433.05-434.79 MHz band

The device complies with the following Standards:

EN300 220-1 v2.4.1 (2012-01)

EN300 220-2 v2.4.1 (2012-05)

EN301 489-3 v1.4.1 (2002-08)

Receiver category : 2

The SKR3177 is a “Short Range Device” (SRD) and is intended to operate in compliance with the ERC Recommendation 70-03 Annex 1 : Non specific short range devices Frequency Band g3 (433.05-434.79 MHz) .

The following restrictions apply:

The term “Short Range Device” (SRD) is intended to cover the radio transmitters which provide either uni-directional or bi-directional communication which have low capability of causing interference to other radio equipment. SRDs are not considered a “Radio Service” under the ITU Radio Regulations (Article 1).

SKR3177xx "microSP" Receiver/USB Dongle functional description

The receiver (refer to the Block Diagram) is divided into two parts :

- 1) **Rx front end** - a proprietary "Direct Amplification Receiver" design (Patent WO 2012150565 A3).
- 2) **Digital part** - implemented into the NXP ARM Cortex M0 LPC1114 microcontroller. The programmed firmware in the LPC1114 decodes the "microSP" messages and converts them to a format to be sent, via USB, to a PC for subsequent processing and display.

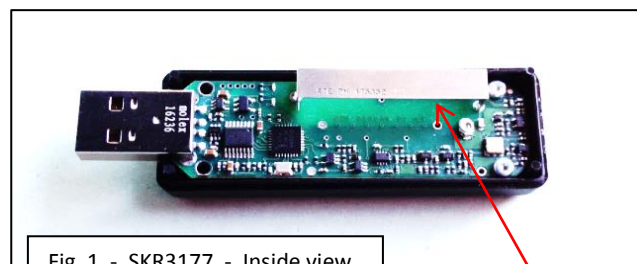


Fig. 1 - SKR3177 - Inside view

LOOP Antenna and Antenna Tune

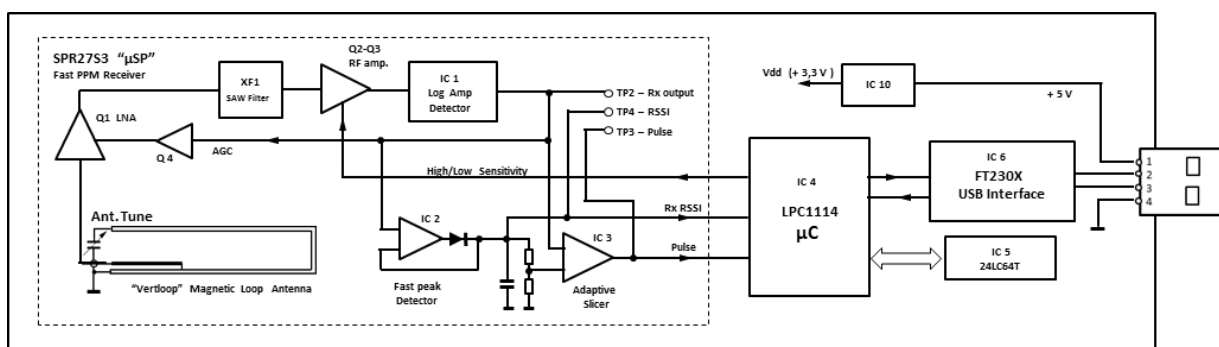


Fig 2 - SKR3177 Block Diagram

A key element of the **SKR3177** is the "Magnetic Loop" antenna (Patent pending). A good and efficient antenna is of paramount importance in every "wireless" network. The "Loop" antenna is widely employed into the "microSP" technology because of its compact design with excellent efficiency without the need for ground references together with a good rejection of the wideband noise generated by PCs or "wireless" equipments like WiFi, Bluetooth, etc.

Preliminary note on the "Decode/SW" Versions

The SKR3177 is programmed to decode all the "Data-string" from the "microSP" Sensors or Alarms transmitters.

- 1) **SKR3137S-SP2** "OI-Net" Protocol
USB UART Settings 38400,8,N,1 Binary coded Data
- 2) **SKR3137S-D2** "D2" Protocol
USB UART Settings 38400,8,N,1 Hex coded data in "Clear" format
(optional format : string of Hex coded data)

Red Led - On Channel "Noise" or "Interference"

Green Led - Valid code "Decode"

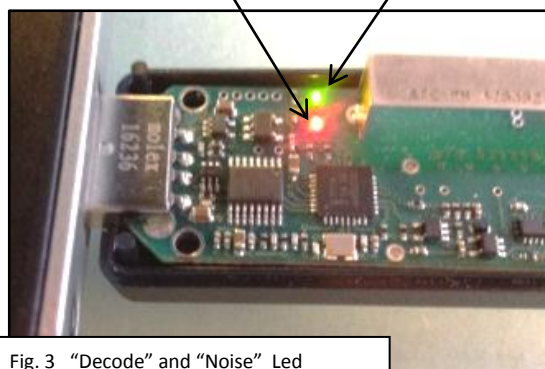


Fig. 3 "Decode" and "Noise" Led