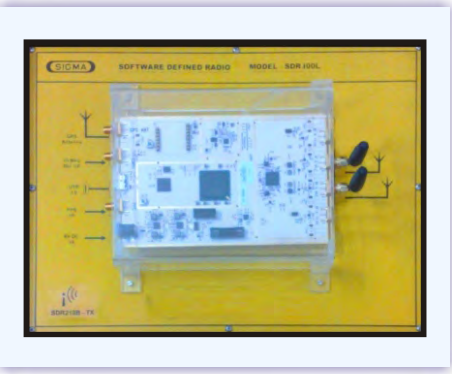
SOFTWARE DEFINED RADIO
(Advanced Model)
MODEL - SDR200N



Overview

This is the highest performing trainer of hardware of USRP (Universal Software Radio Peripheral) family of products, which enables engineers to rapidly design and implement powerful, flexible software radio systems.

This trainer is ideally suited for applications requiring high RF performance and great bandwidth. Such applications include physical layer prototyping, dynamic spectrum access and cognitive radio, spectrum monitoring, record and playback, and even networked sensor deployment.

The Networked Series products offers MIMO capability with high bandwidth and dynamic range. The Gigabit Ethernet interface serves as the connection between the trainer and the host computer. This enables the user to realize 50 MS/s of real-time bandwidth in the receive and transmit directions, simultaneously (full duplex).

The Networked Series MIMO connection is located on the front panel of each unit. Two Networked Series units may be connected to realize a complete 2x2 MIMO configuration using the optional MIMO cable. External PPS and reference inputs can also be used to create larger multi-channel systems.
The USRP Hardware Driver supports Linux, Mac OSX, Windows.

FEATURES

1. Use with GNU Radio, LabVIEW and Matlab Simulink
2. Frequency Coverage DC - 6 GHz
3. Dual 100 MS/s, 14-bit ADC and Dual 400 MS/s, 16-bit DAC
4. DDC/DUC with 25 MHz Resolution
5. Up to 50 MS/s Gigabit Ethernet Streaming
6. Fully-Coherent MIMO Capability
7. Gigabit Ethernet Interface to Host
8. 2 Gbps Expansion Interface
9. Spartan 3A-DSP 1800 FPGA
10. Auxiliary Analog and Digital I/O

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Dealer:-

SPECIFICATIONS

1.	Interface	1 Gbps LAN RJ45
2.	FPGA	Xilinx - Spartan 3A DSP1800 - FPGA
3.	Coverage Frequency	0 to 6 GHz
4.	ADC	ADC 14 Bit Dual 100 MS/s
5.	DAC	DAC 16 Bit Dual 400 MS/s
6.	Channels	Two Channels 2-TX, 2-RX
7.	Duplex	Half / Full
8.	Real Time Bandwidth	40 MHz
9.	Daughter Board	SBX - 400 MHz to 4.4 MHz Ungradable to CBX -1.2 GHz to 6 GHz
10.	Power O/P	15 dBm
11.	Phase Noise	100 dBc/Hz at 100 KHz
12.	Receiver Noise Figure	5 dB
12.	I/O	Auxiliary Digital & Analog I/O
13.	Streaming	50 MS/s 1Gbps LAN Streaming
14.	MIMO	2X2 MIMO Expandable to 4X4
15.	Frequency Accuracy	2.5 ppm TCXO, 0.01 ppm with GPSDO option
16.	Memory	1 MB High Speed SRAM
17.	Connectors	RJ45, SMA, MIMO Expansion Slot - 2Gbps
18.	Supply Voltages	6V DC, 3A
19.	Power Supply	External Included
20.	Driver	UHD
21.	Operating Systems	Linux, Windows
22.	Applications	GNU Radio, Physical layer prototyping, Dynamic Spectrum access and Cognitive Radio, Spectrum Monitoring, Record and Playback and Networked Sensor Deployment.
20.	Accessories :-	1. Trainer, 2. Antennas - 2 Nos. 2.4 GHz 3. Loopback Cable 4. Bootable USB GNU Radio Drive 5. Practical Manual 6. Application Sw CD 7. SDR Presentation PPT Slides **8. SDR Books - 50 Nos in PDF format** **9. Communications Block Book by Prof. D R Luhar**

EXPERIMENTS

MODEL - SDR-N200

1. To understand Basic theory of Software Defined Radio
2. To understand Block Diagram of Software Defined Radio
3. To install Operating System in Computers Linux
4. To understand Hardware of Software Defined Radio
5. To understand and Install Software for SDR
6. To install UHD Driver Software
7. To install Programming Languages C++ and Python
8. To understand and Install Applications Programs
   GNU Radio and Matlab Simulink
9. To How to Start
10. To generate Sine wave signal
11. To generate Noise signal
12. To add Signal and Noise
13. To observe SNR clipping
14. To generate Variable
15. To generate Dial Tone
16. To generate Mono Tone
17. To generate Multi Tone
18. To generate AM Modulation signal
19. To generate AM DSB Modulation signal
20. To generate AM SSB Modulation signal
21. To generate Stereo FM Receiver
22. To receive FM signal
23. To receive FM signal
24. To receive Wide band FM signal
25. To generate synchronized PAM signal
26. To generate PAM timed signal
27. To generate Gaussian FSK signal
28. To generate Gaussian FSK PLL signal
29. To generate Single Channel BPSK signal
30. To generate Dual Channel BPSK signal
31. To generate DPSK Signal
32. To generate MPSK
33. To generate Single Channel QPSK Signal
34. To generate Double Channel QPSK Signal
35. To generate GMSK Signal
36. To generate QAM signal
37. To generate Measure Bit Error Rate
38. To represent Digital Bits
39. To generate PLL PSK signal
40. To generate Multiplath MPSK signal
41. To receive Radar Beacon signal
42. To receive AZmap signal
43. To implement FFT Filter
44. To implement Synth Filter
45. To make XMLRPC Server
46. To make XM:RPC Client
47. To generate CVSD Sweep signal
48. To display UHD FFT signal
49. To decode 802,11a wireless signal
50. To generate RA5 signal

51. To received Mode-S Signals
52. To transmit DPSK signal using UHD
53. To receive DPSK signal using UHD
54. To receive IQ signals
55. To observer Transmitted Carrier signal on CRO
56. To generate OFDM signal
57. To observer characteristics of OFDM signals
58. To transmit OFDM signal using USRP
59. To receive OFDM signa l using USRP
60. To understand HDSDR
61. To observer other grc and py files in GNU Radio
62. Introduction to GNU Radio
63. Introduction to USRP
64. Implementation of AM using SDR
65. Implementation of FM using SDR with application such as transfer of files
66. Implementation of M-PSK transmitter using SDR
67. Implementation of M-PSK receiver using SDR
68 Implementation of M-QAM transmitter using SDR
69. Implementation of M-QAM receiver using SDR
70. Implementation of Transmission of files on Wireless media using SDR
71. Implementation of OFDM using SDR
72. Implementation of Cognitive radio using SDR