

WILIGEAR

WBD-500

Hardware Manual

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Product Description

The WBD-500 is a powerful, 500mW (27dBm) integrated radio platform offering seamless wireless performance on the 2.4 GHz spectrum. The embedded chipset-radio design enables robust performance at an affordable price point by eliminating the need for additional mini-PCI radio hardware. With its small form factor, the WBD-500 can integrate into a variety of enclosures, both indoor and outdoor, and can be used in a variety of wireless applications, including 802.11b/g customer premise equipment, access points, as well as point-to-point and point-to-multipoint wireless bridges.

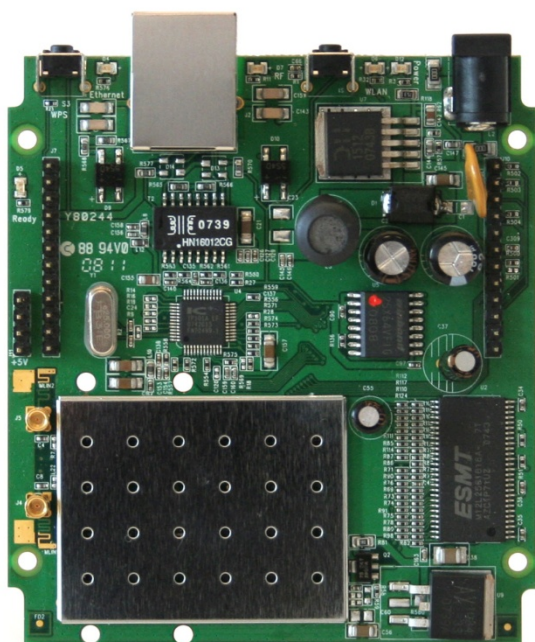


Figure 1 – Front View of the WBD-500

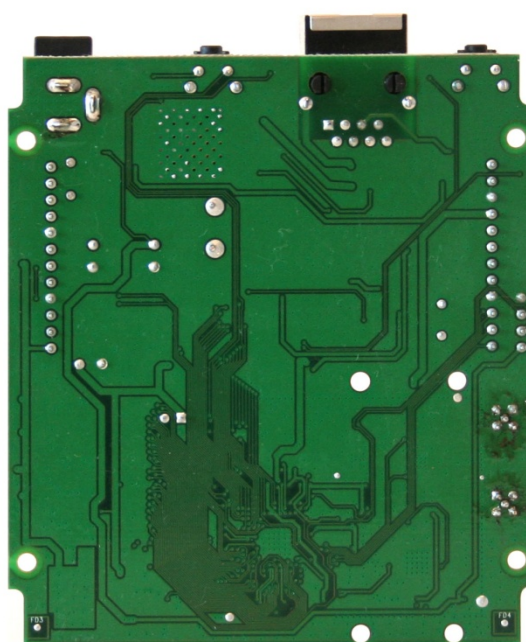
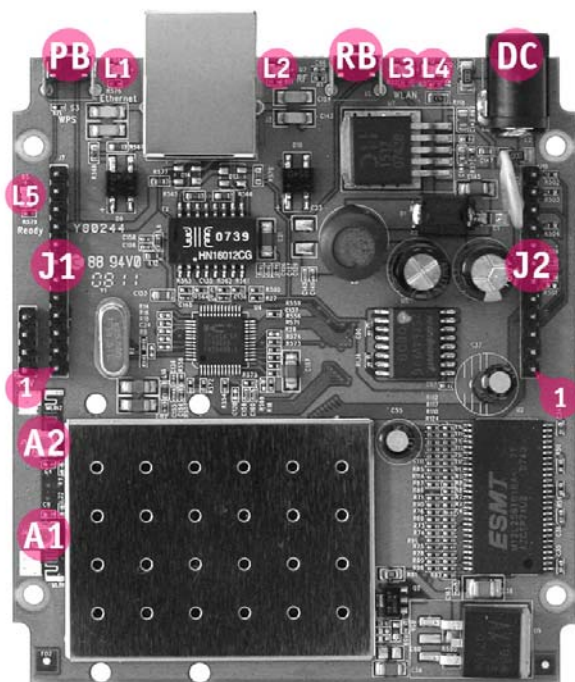


Figure 2 – Rear View of the WBD-500

WBD-500 Details



Item	Signification
DC	Power connector
RB	Reboot button
PB	Programmable button
L1	100Mbit LAN LED
L2	ready led software controlled (GPIO7)
L3	soft LED (GPIO 2) not used
L4	power LED
L5	10Mbit LAN LED
J1	Jumper (1 signifies the first pin)
J2	Jumper (1 signifies the first pin)
A1	Main antenna
A2	AUX antenna

Figure 3 – WBD-500

CPU

AR5006AP-G Solution Highlights

- Highly integrated single chip access point solution, including integrated 32-bit MIPS R4Kc-class processor, multiprotocol MAC/baseband, and Radio
- Support for IEEE 802.11b, 802.11g
- Uses digital CMOS technology exclusively, minimizing power consumption and cost while maximizing reliability
- Power-saving design improvements reduce power consumption by 98%
- Next-generation OFDM radio provides best-in-class range, throughput and power consumption
- Atheros XR™ eXtended Range technology to give Wi-Fi products twice the range of existing designs
- Hardware encryption for the Wi-Fi Protected Access (WPA) and IEEE 802.11i security specifications – provides Advanced Encryption Standard (AES), Temporal Key Integrity Protocol (TKIP) and Wired Equivalent Privacy (WEP) without performance degradation
- Wireless multimedia Quality of Service support (QoS)

AR2315 Single-Chip 2.4 GHz Access Point Solution

- Operates from 2.300 to 2.500 GHz
- Advanced wideband receiver with best path sequencer for better range and multipath resistance than conventional equalizer-based designs
- Eliminates all IF filters and most RF filters; no external voltage-controlled oscillators (VCOs) or

- surface acoustic wave (SAW) filters needed
- Enhanced transmit and receive chains
- Integrated 32-bit MIPS R4Kc-class processor
- Wireless MAC and baseband processing engine
- 10/100 Ethernet MAC
- High speed UART
- 16-bit configurable local bus
- Integrated analog-to-digital and digital-to-analog converters
- SDRAM and serial FLASH memory interface
- PCI 2.3 host interface

RAM

256Mbit (32MB) of 16-bit 166MHz SDRAM.

Flash

64 Mbit (8MB) of 3V supply Flash memory.

Ethernet

10/100 Base-TX Ethernet port features automatic MDI/MDIX switching, full duplex 10/100 Base-TX operation with auto-negotiation, accepts power over Ethernet (PoE functionality) with 9-48V voltage power injectors.

LEDs

Device has 5 green LEDs (refer to *Figure 3 – WBD-500*) for detailed arrangement of the LEDs):

- L1 – 100Mbit LAN LED,
- L2 – ready led software controlled (GPIO7).
- L3 – soft LED (GPIO 2) not used.
- L4 – power LED,
- L5 – 10Mbit LAN LED.

Reset button

Software reset button (marked as RB in the *Figure 3 – WBD-500*) reset software to default configuration. For device reboot - press the reset button for less than 5 seconds to reboot the WBD-500. For device reset to factory defaults - press the reset button for more than 5 seconds to set the WBD-500 configuration to factory defaults. After this action the device reboots, and the factory default values are restored.

Jumpers

Jumpers J1 and J2 provide access to processor's GPIO pins, TTL level serial port. Jumpers are positioned to allow easy connection and stacking of optional daughterboards.

J1 Pin	Connection
12	N/C
11	N/C
10	Ground
9	+3.3V
8	N/C
7	N/C
6	N/C
5	N/C
4	Ground
3	GPIO3
2	GPIO1
1	GPIO0

Table 1 – J1 connections, layout as on PCB

J2 Pin	Connection
12	TCLK
11	TMS
10	TDO
9	TDI
8	Ground
7	SW_VIN
6	TRST_L
5	Cold reset
4	Ground
3	Serial out
2	Serial in
1	+3.3V

Table 2 – J2 connections, layout as on PCB

For serial console connection TTL level to RS-232 converter is required. Generic cell phone USB data cable based on Prolific PL2303HX chip may be used. Parameters for WBD-500 serial console access are:

- 115200/8-N-1.

Connect data cables:

- RX wire to Serial in (2) pin,
- TX wire to Serial out (3) pin,
- GND ground wire to Ground pin on WBD-500 device.

Disassembly of data cable connector may be required to find out the wiring. Wires are color coded and TX, RX, GND marks should be printed on a cable's PCB. Generally RX signal wire is white, TX is blue and GND is black. Generic data cable schematics show TX wire connected to pin #1 and RX wire to pin #5 of Prolific PL2303HX chip.

Power

WBD-500 can be powered by connecting 9-48V voltage power supply to DC jack (see *Figure 3 – WBD-500*) or via Ethernet by using power injector. Insertion of power supply connector disconnects Ethernet power feed line. Power jack accepts DC 2.1/6.3 mm coaxial power connectors.



Voltage	Idle, A/W	Full load, A/W
9V	0.50A / 4.5W	0.94A / 8.5W
12V	0.38A / 4.6W	0.70A / 8.4W
15V	0.30A / 4.5W	0.56A / 8.4W
18V	0.26A / 4.7W	0.48A / 8.6W
24V	0.19A / 4.6W	0.36A / 8.6W
30V	0.16A / 4.8W	0.29A / 8.7W
36V	0.13A / 4.7W	0.25A / 9.0W
40V	0.12A / 4.8W	0.23A / 9.2W
48V	0.10A / 4.8W	0.19A / 9.1W

Table 3 – Power consumption

Specifications

Electrical

Input voltage	9-48V
Operating current	0.38A Typical @ 12V

Mechanical

Dimensions	91mm x 81mm x 18mm
Weight	51g

Environmental

Operating parameters

Temperature	-25°C to +65°C
Humidity	20% to 90% (non condensing)

Storage parameters

Temperature	-40°C to +85°C
Humidity	5% to 95% (non condensing)

Software

WBD-500 comes preloaded with WILIBOX WILI software together with WILI-AP skin. Device can be accessed from a web browser using the following parameters:

Device IP address: **192.168.2.66**

Username: **admin**

Password: **admin01**

For more information refer to WILI User's Guide and WILI-AP SKIN User's Guide which can be found at <http://www.wiligear.com> website.