

**ALFA R36 WIFI REPEATER**  
**Revised 31 March 2013**

**SUMMARY**

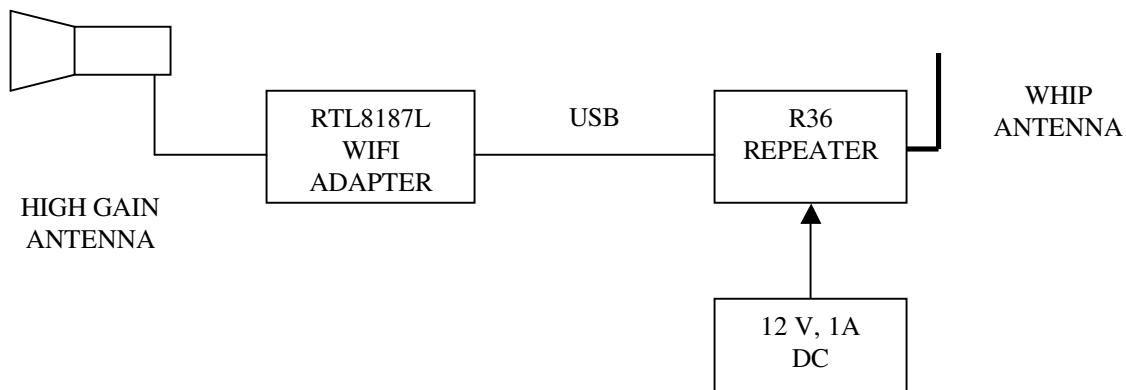
The Alfa R36 repeater module accepts a USB connection to any existing wifi adapter using the Realtek RTL8187L chipset, Alfa AWUS036H and others. The R36 is easily configured to control the wifi adapter to connect to an existing wifi signal (infrastructure mode) and then will rebroadcast (repeat) that signal to your computer or tablet (AP mode). Please note that the RTL8187L chipset only supports 802.11b (11 megabit) and 802.11g (54 megabit) wifi signals. It does not support 802.11n (150 megabit) signals. This is entirely adequate for most private consumer applications (email and web browsing).

**JKSE REPEATER**

The JKSE repeater utilizes the [JKSE high performance wifi antenna system](#) mounted at the top of an outdoor mast to connect with distant signals. The USB cable from the antenna system connects to the Alfa R36 located in a weatherproof housing near the bottom of the pole (outdoors) or inside the house or RV. The whip antenna on the R36 rebroadcasts the chosen signal picked up by the high performance antenna.

This rebroadcast makes the high performance wifi antenna system available for use with any 802.11b/g wifi enabled device, including smartphones, tablets and other devices with newer and different operating systems.

**BLOCK DIAGRAM**



**POWER**

The R36 requires 12 volts DC at up to 1 ampere. The center pin on the R36 power connector is positive, the sleeve is negative. The wire with the white stripe from the R36 power supply is positive. The R36 supplies 5 volts DC to the wifi adapter via the USB cable.

## SETUP

1. Install the JKSE Repeater so the high gain antenna is outdoors and high up in the air and aimed at the desired access point, with as few buildings and trees as possible to obstruct the signal.
2. Power up the JKSE Repeater. The R36 provides 5 volts DC power up the USB cable to the wifi adapter used with it.
3. Power up any wifi enabled computer or other device with Internet browse capability.
4. In the list of wireless signals available to your computer's built-in wifi, look for one named "ALFA-AP" and connect to it.
5. In the browser address bar, type in (without the ") "192.168.2.1"
6. When the logon window appears, enter "admin" for both login name and password. These may be changed later if desired.
7. Click "easy setup"
8. Click "usb wireless adapter"
9. Click "site survey" and wait for the report page
10. Click "rescan"
11. Click on the "ssid" signal you want to use
12. Click "select"
13. Click "next"
14. Click "done"
15. Please note that if you change the SSID (signal name) from the default "ALFA-AP" to another of your choice the change will take effect, but then your computer's wifi will disconnect because the 'old' signal is no longer there. Connect to the renamed signal and then log in to the R36 again to continue.
16. Security can be added at anytime by clicking on "advanced" and then clicking on "security". For password protection, select "WPA-PSK\_WPA2-PSK" from the menu. Then check the circle "Auto (TKIP/AES)". Type in your desired password (pass phrase), which must be between 8 and 63 characters including spaces. If asked, type in your desired password a second time in the space provided to confirm.

## TIPS FOR OPTIMIZING THE ALFA R36

1. Occasionally the R36 will "hang up" and not function. I do not know the exact cause of this. The remedy is to remove power from the R36 for maybe 15 seconds and then reapply power. Wait about a minute while the R36 boots up and then the R36 will resume normal operation as previously set up
2. IP conflicts can occur when too many devices start their DHCP assignments at the same place. This is controlled in the R36 by accessing the R36 at 192.168.2.1, then clicking on "Advanced", then clicking on "LAN". DHCP settings are given in the second section on that page, and begin at 192.168.2.100 and end at 192.168.2.199 by default. I changed my start point from 192.168.2.100 to 192.168.2.133 and it seems to help. There are just too

JIM KANESS SYSTEMS ENGINEERING  
4267 Varsity St., Ventura, CA 93003

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many 192.168.2.100 assignments out there!

3. Any 802.11 transmitter may have a stated bandwidth of 20 MHz but this is only the 3 dB or half-power bandwidth. The actual spectrum extends much further than that. For an authoritative discussion of this see

<http://www.cisco.com/en/US/docs/wireless/technology/channel/deployment/guide/Channel.html> . Bottom line is that wifi adapters and routers, including the R36, should be physically separated and/or shielded from each other for best results. If possible, put one device on channel 1 and the other on channel 11 as a starting point. Then use physical separation and antenna patterns to minimize interference between devices. The interference will show up as a reduced connection speed from what could be done before the R36 was added to the system. Operating the LAN (R36 to user computer) at 11 mbps (802.11b) seems to help also.