TUNABLE ANTENNAFIER™ 2400LTC

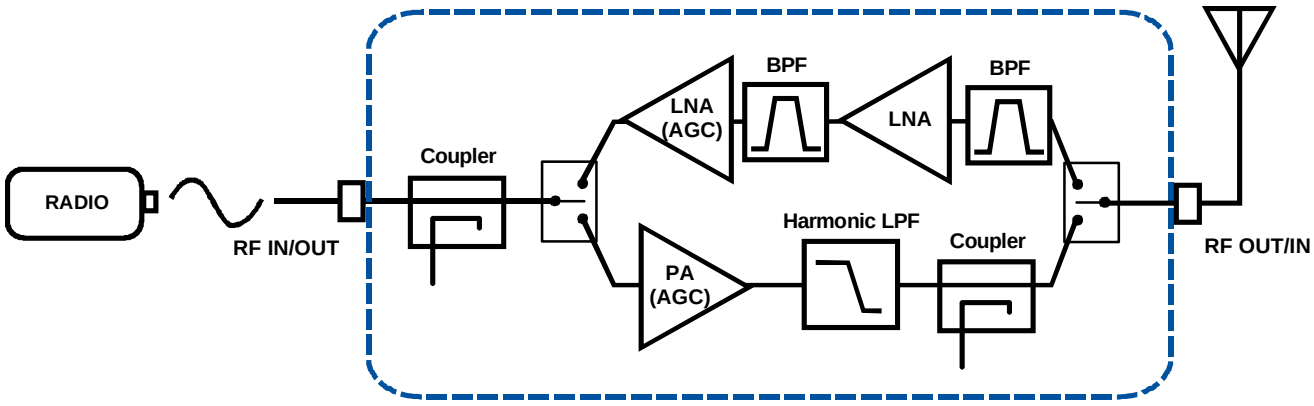
The 2400LTC is an OEM version of our Digitally Tunable Bi-directional Amplifier for 802.11g/b WLAN. Now you can fine tune your system's RX Gain and TX Output Power easily via a USB connection & our free software. These amplifiers have non-volatile memory and will recall their previous settings. Reprogramming is simple and can be easily accomplished in the field.

Improve your link margin digitally with spectrally clean TX Output Boost from 0.5W to 4W and highly selective RX gain from 5 to 20dB.

Featured Highlights:

- Fully Adjustable AGC TX Power: 0.5W to 4W
- Fully Adjustable RX Gain: 5 to 20dB
- USB controlled (USB Cable included)
- Non-Volatile Memory (tune and remember)
- RF Power Meter
- Status Report
- High Q filtering in both RX & TX paths
- Low Receive Noise Figure
- Internal Lightning Protection
- RX/TX LED Indicator
- Automatically switches between RX/TX
- OEM compact size

2400 LTC BLOCK DIAGRAM



The marketing, sale, and use of power amplification devices are governed by and subject to Part 15 of the Rules and Regulations of the Federal Communications Commission. Such devices may only be sold to parties assembling certified RF transmission systems consisting of an intentional radiator, an external radio frequency power amplifier, and an antenna.

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TUNABLE ANTENNAFIER™ 2400LTC

RF LINX CORPORATION

Typical Performance Parameters

Frequency Coverage:	2.44 GHz +/- 50MHz	
Supply Voltage:	+12VDC	2.1mm I.D. (+), 5.5mm O.D. (-)
Tuning:	USB	MINI-B-Female
Receive:	Adjustable Gain:	5 to 20 dB (Pin < -12dBm)
	Noise Figure:	2.5 dB Typ.
	Supply Current:	< 50mA
	TX to RX Switching:	< 500nSec
	IP_3 (Input):	+18dBm
Transmit:	Adjustable AGC Power :	0.5W to 4W (27dBm to 36dBm)
	AGC range:	Min Gain : 10dB Max Gain: 32dB
		(For Pout = 27dBm ; Set Pin from 0 to 17dBm)
		(For Pout = 36dBm ; Set Pin from 4 to 23dBm)
	'802.11g' Modulation Rates	4W typically yields 24 to 36Mbs
		3W typically yields 36 to 48Mbs
		≤ 2W typically yields 48 to 54Mbs
	RF Input Pwr for Turn-On:	>+2dBm
	Harmonic Rejection:	> 65dBc @ 30dBm Power Out
	Supply Current:	< 2A , 1.7A nominal
	RX to TX Switching:	< 500nSec
Maximum Ratings:	Pin (Radio Port)	+30 dBm
	Pin (Antenna Port)	+27 dBm
System Filtering:	In the RX chain there is a total of 6 poles of high Q coaxial band pass filtering In the TX section we use a ceramic LPF to suppress harmonics	
Size:	3.7" x 4.9"x 0.6" ("SMA" Female Connectors) *** FINGER TIGHTEN SMA CONNECTORS *** *** OTHERWISE THEY WILL TEAR-OFF CCA ***	
Weight:	< 5 oz	
Mounting:	*** External heat sink or heat dissipating source required *** *** During operation amplifier will dissipate approx. 12 Watts ***	
Indicator LED:	Green LED -Receive Mode, Red LED-Transmit Mode	
Lightning Suppression:	1/4 wavelength short	
Temperature:	-40 to +70Deg C	

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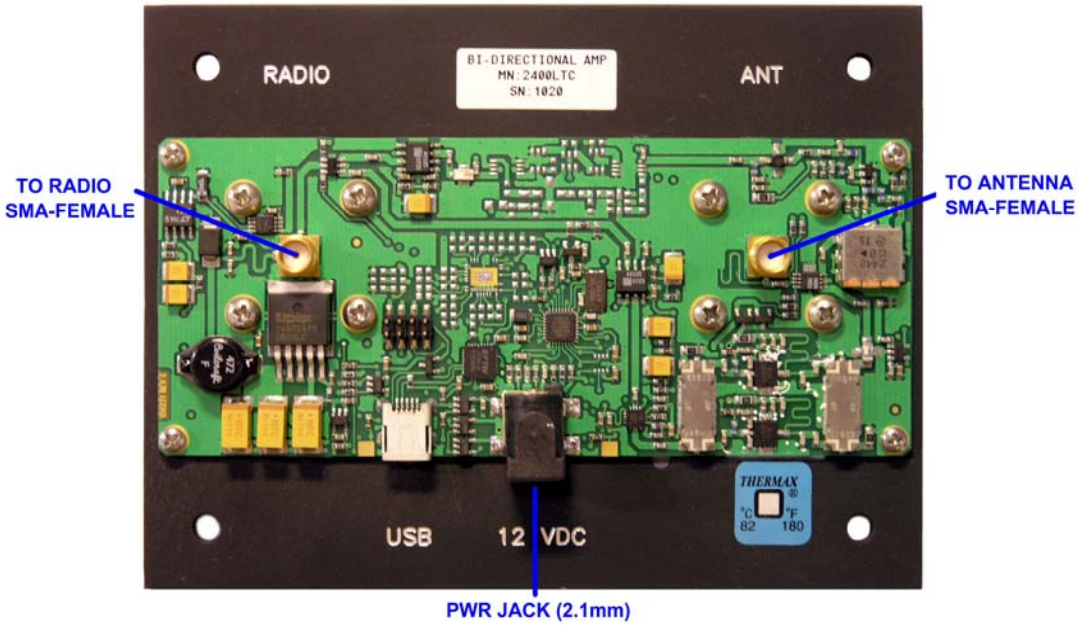
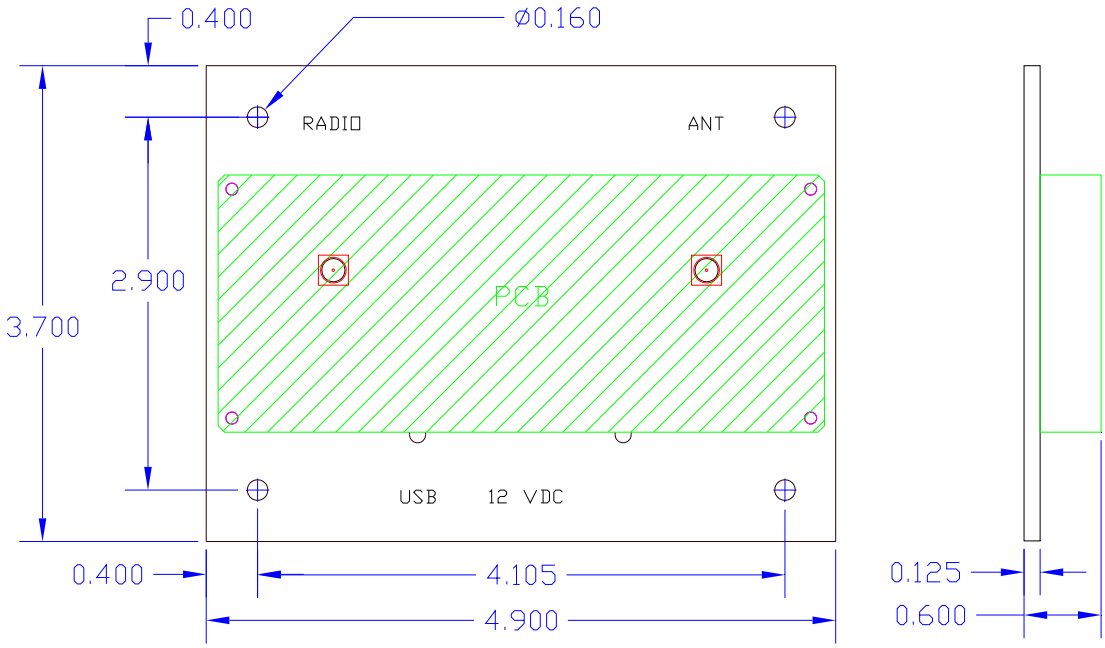
Mechanical Footprint:

**** FINGER TIGHTEN SMA CONNECTORS****





**** EXTERNAL HEAT SINK REQUIRED*****
**** AMPLIFIER DISSIPATES APPROX 12W DURING OPERATION *****

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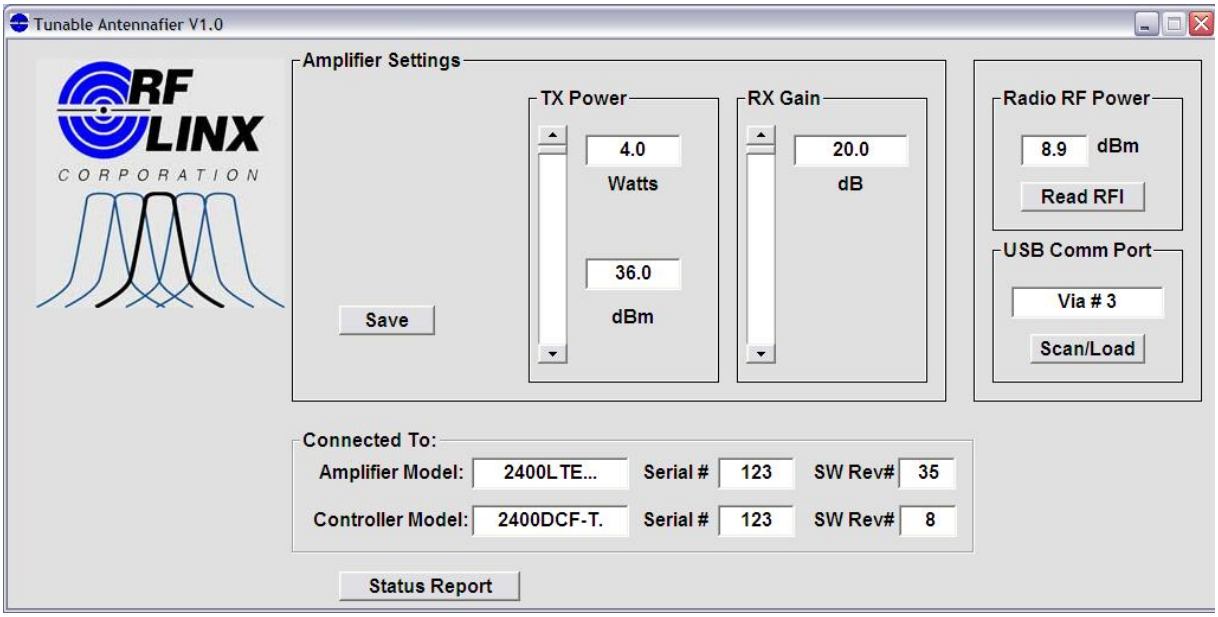
Programming Your Tunable Antennafier™

Programming is easily accomplished with a USB connection and our Tunable Software. The software operates on Windows 2000 / XP platforms. Below is a sample of the simple easy to use graphical interface.



The software reads the amplifiers settings via this USB connection. Each Antennafier™ leaves the factory set at TX Pwr=+30dBm and RX Gain =+20dBm, and has a unique serial number . To change the TX Pwr and RX Gain settings, simply adjust the slide bar to the desired levels, the changes are almost instant. To permanently store these settings simply press the “Save” button, then disconnect the Tunable Controller. The Tunable Antennafier™ always remembers its stored information even when power is cycled.

Radio Output Power to the amplifier can also be measured. Selecting “Read RFI” , will yield average RF energy during a TX cycle for either 802.11b/g modulations. This RF power measurement is useful and will aid in system diagnostics and assure proper RF Input Power is being applied to your amplifier.

A “Status Report” button is used to provide detailed diagnostic information.

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LED Indicators:

When DC power is applied and the Radio is connected to the amplifier the green RX LED should be lit. The red TX light will only turn on when the amplifier senses an RF level of greater than +2 dBm on it's TX Input port. During normal RX/TX operation, one will see these two LEDs flicker back and forth between transmit and receive. If neither of these lights are operational, check to ensure proper DC power is being applied.

Mode	*TX*	*RX*
Transmit	Red	-
Receive	-	Green
Fault	-	-

Advanced Remote Control Commands via COM Port:

These Amplifiers have the unique ability of being externally controlled via a COM Port with simple standard ASCII commands. Users can now write their own custom software applications. A listing of these commands is tabulated on the next page.

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Advanced Remote Control Commands via COM Port:

Commands are not case sensitive. Spaces are optional, allowed anywhere, and ignored. A command is processed upon reception of carriage return (CR). All numeric digits (leading zeros) must be supplied. A decimal point is assumed in some commands. A backspace character will "erase" a received character. The baud rate is 9600, 8 bits, no parity (may be factory adjusted).

Command	Description
Generic status commands:	
LOGxxxx	Conversion tool xx.xx Watts to xx.x dBm (i.e. 0523 W => 373 (37.2)dBm)
ECHOON	Turn loopback Echo ON
ECHOOFF	Turn loopback Echo OFF
RESTORE	Restore factory default user settings
AMPSER?	Returns amp serial number
AMPREV?	Returns amp firmware rev
AMPSTAT?	Return amp status (not available with DC Injector)
AMPID?	Return amp Identity String
SAVEALL	Store user settings
ERRNUM?	Return internal error code
TXAGC?	Return AGC mode (1 ON, 0 OFF)
AGCOK?	Returns if AGC is 'OK' or 'UNLOCKED'
Receive commands:	
RXGMIN?	Return minimum allowable RX dB Gain
RXGMAX?	Return maximum allowable RX dB Gain
RXGDB?	Return RCV gain setting, (xxx dB)
RXGxxxDB	Set user RX dB gain level (i.e. 15.1dB = 'RFG151DB')
RFIMEAS	Sets-up to measure average RFI during TX mode
TXRFI?	Return measured RFI (used after RFIMEAS to report RFI level dBm)
Transmit commands:	
TXMIN?	Return minimum allowable AGC dBm level
TXMAX?	Return maximum allowable AGC dBm level
TXDBM?	Return TX power setting (dBm)
TXWATTS?	Return TX power setting (Watts)
TXxxxxWATTS	Set user TX level in Watts (i.e. 1W = 'TX0100WATTS')
TXxxxDBM	Set user TX level in dBm (i.e. 30.0dBm = 'TX300DBM')
The following commands valid for 2400DT models only:	
PLLOK?	Check PLL Lock (used on 2400DT only)
CHAN?	Reply with user channel (used on 2400DT only)
CHANxxx	Set user Channel nnn (00-014, used on)
The following commands only valid for Fixed Gain Amps (AGC is OFF):	
TXGMIN?	Return minimum allowable fixed gain level in dB (xx.x dB)
TXGMAX?	Return maximum allowable fixed gain level in dB (xx.x dB)
TXGxxxDB?	Set user TX gain in dB (i.e. 12.3dB = 'TXG123DB')

Note commands show current settings which may differ form the stored settings use SAVEALL to store user settings

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