



Videolynx

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Video-Lynx 434
Micro video transmitter

Only to be used by a licensed radio amateur

High performance, SAW stabilized *Micro Video Amateur ATV Transmitter*

Freq: 433.92MHz

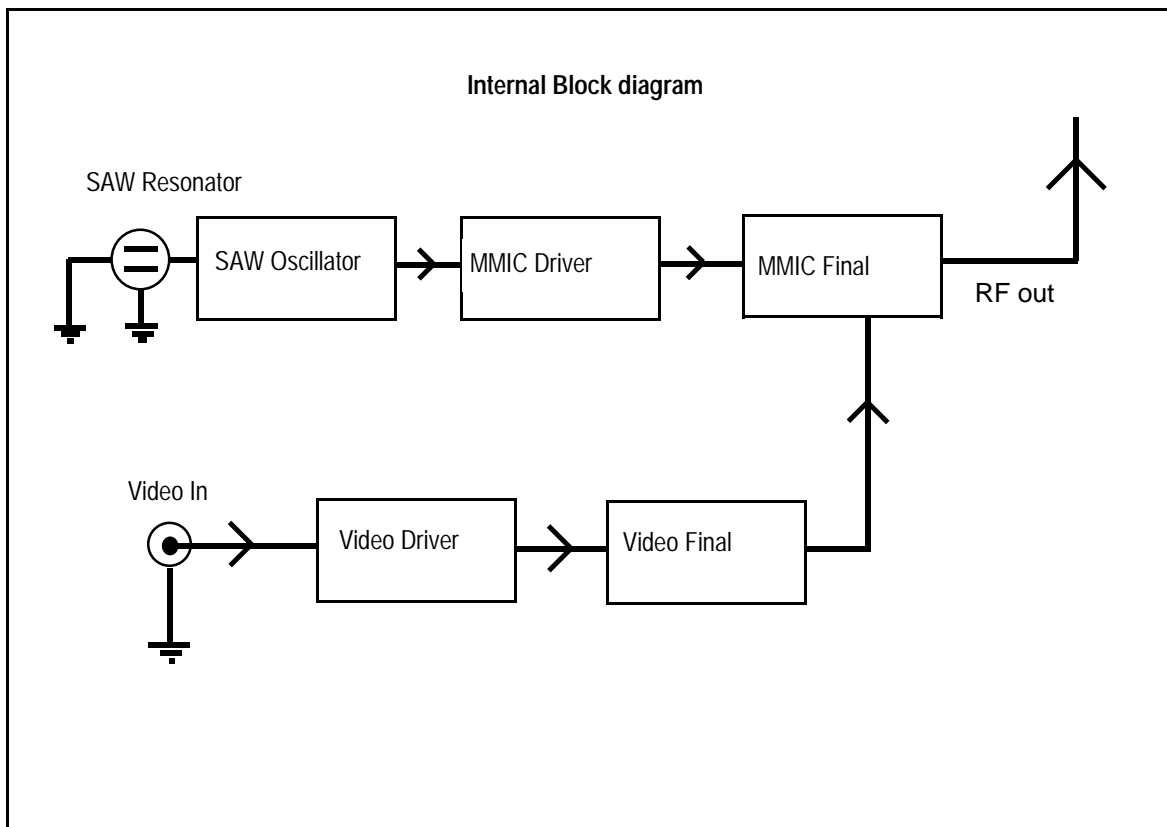
The **Video-Lynx 434** is a high quality, high performance SAW stabilized video transmitter, using surface mount technology

A SAW oscillator is used in the fundamental operating mode to transmit at **433.92 MHz** (**Cable channel 59**). The power output stage uses the latest in MMIC technology.

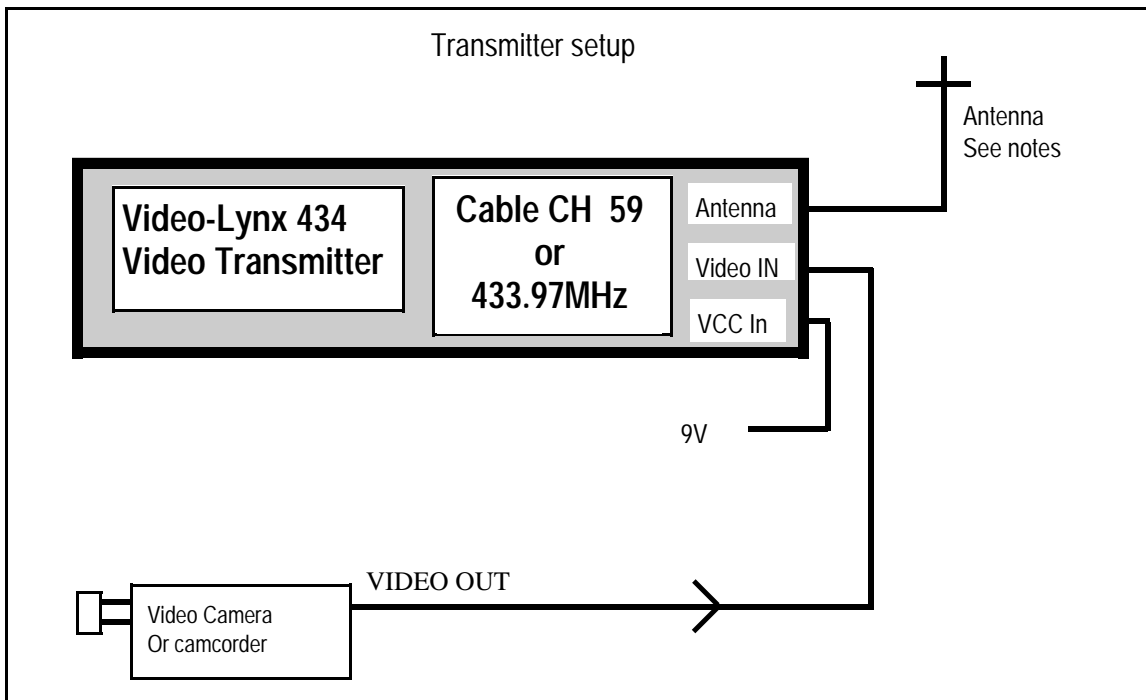
The **Video-Lynx 434's** range, can vary any where from 1/4 mile to 8 miles depending on the antenna used. High gain yagi's provide the best gain. If you plan to build your own antenna, an experimental antenna plan is included. However commercially available high gain antenna's provide the best performance. Use the highest gain antenna possible for both the transmitter and receiver with the shortest possible transmission line.

Possible applications

- Model R/C
- Model Rocketry
- Simplex Video
- RACES
- Hat Cam
- Airborne ATV

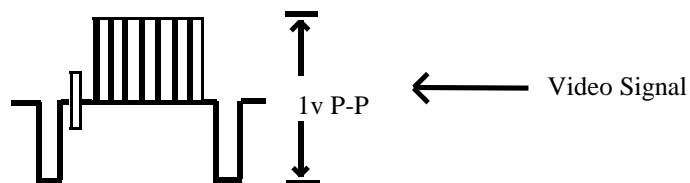


Operation and Setup



Video Input

The block diagram above shows how the **Video-Lynx 434** needs to be connected to a video source. Make sure that you have SMPTE standard video at 1 V P-P. Most consumer and commercial camera's and camcorders deliver SMPTE standard video, at the "video out" connector. If for any reason you are not sure if the video device is delivering SMPTE standard video, you can confirm this by looking at the video signal on an oscilloscope.



VCC INPUT

Due to size limitations there is no regulation provided inside the Video-Lynx 434. It operates on a 9V supply. While the Video-Lynx 434 can may tolerate about +/- 2V of VCC error, higher supply voltages may reduce the power output. A power supply could be substituted in place of a battery. Use caution in providing the proper polarity. For battery operation best results are obtained while using nickel hydride or lithium 9V batteries. For extended operational time, you can parallel two 9V batteries. Caution: The Videolyxn434 does not include reverse polarity protection. Therefore be careful to not reverse polarity. The red power lead is (+) positive and the black power lead is negative (-).

Antenna

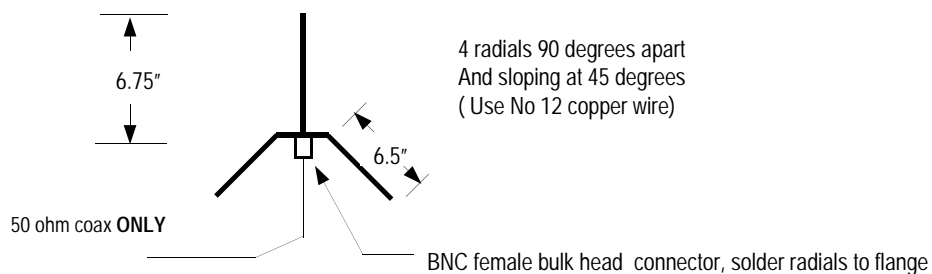
The transmitting and receiving antenna are probably the most critical items for attaining best range. A small piece of 1/4 wave wire as a transmitting antenna in combination with a high gain receiving antenna will do for short range video transmission. **Best results are obtained while using both high gain transmitting and receiving antennas.**

Range testing was performed using the following antennas. The transmit antenna was a 14 element yagi, the receiving antenna was an 8 element yagi . At an approximate distant of 3/4 of a mile excellent picture quality was received. The receiver was a consumer grade Sony TV tuned to Cable CH 59. Please remember, that while a cable ready television would suffice as a good receiver, a sensitive ATV down-converter such as the P.C electronics TVC-4G far outperforms any cable ready television.

Using a 1/4 wave ground plane (shown below) as a transmitting antenna and using a 14 element yagi antenna for the receiving antenna, excellent picture quality at 1/2 mile was possible.

Experimental transmit antenna

This antenna can be used as a receive antenna too



Some antenna performance characteristics

While some transmit-receive antennas combinations perform differently, the following chart depicts the theoretical system performance of the Videolynx434 using various combinations of antennas and an ATV down converter currently available through **PC Electronics. (626-447-4565)**

Receiver: PC electronics ATV downconverter, Model TVC-4G

Transmitter: Videolynx Model 434, with a power output of 50mW

Carrier/Noise: 40 – 45 dB

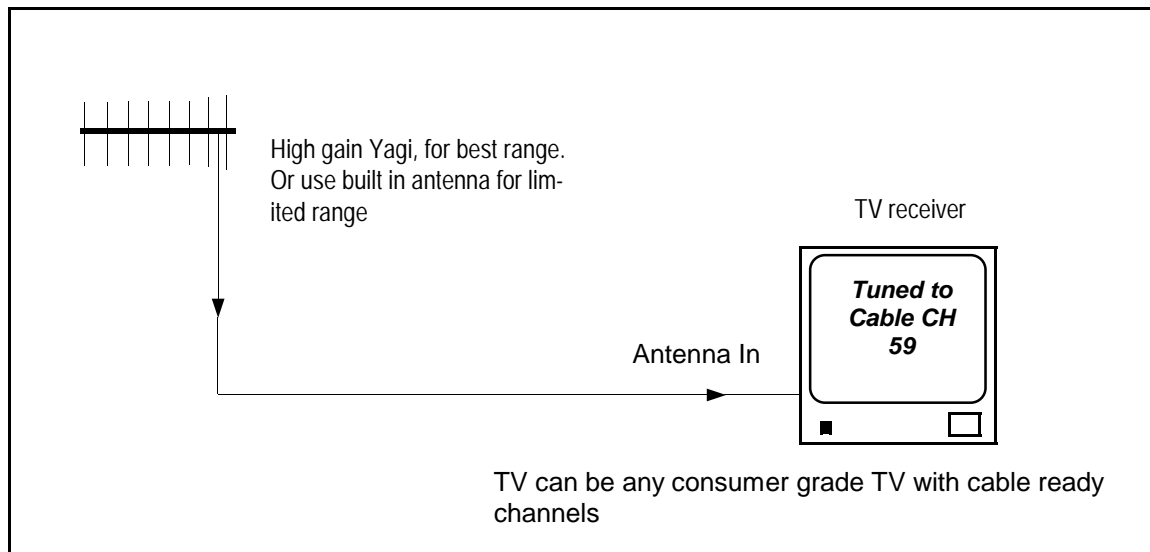
Picture quality: Snow Free P5

Antenna: Ground plane, 5 element 5L-70cm beam (PC electronics), 25 element DSFO ATV-25 Beam (PC electronics)

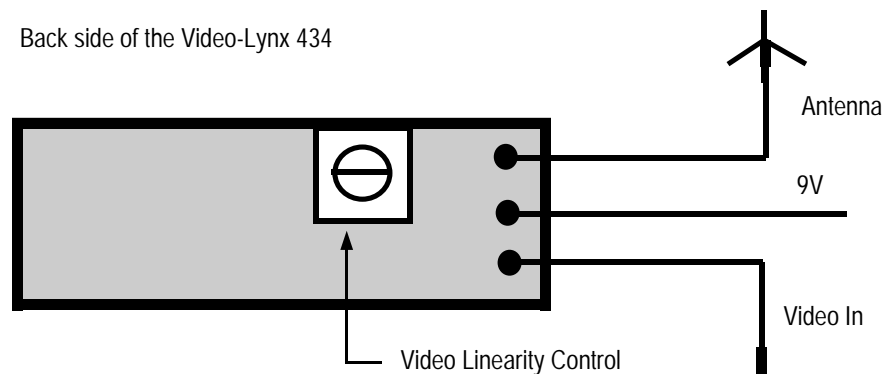
	Ground Plane	5L-70cm	DSFO-ATV25
Ground Plane	0.25 miles	0.6 miles	1.5 miles
5L-70cm	0.6 miles	1.3 miles	3.5 miles
DSFO-ATV25	1.5 miles	3.5 miles	8.0 miles

For more information on purchasing the above mentioned antennas, ATV down converter and other ATV equipemnt, Contact **PC Electronics, 626-447-4565 (Mon-Thur 8:00am – 5:30pm PST) or www.hamtv.com**

Receiving setup



Adjustment of the Video Linearity control



The video Linearity control in the Video-Lynx 434 is pre-adjusted at our lab, adjustment is not necessary unless the unit is used with a external Linear power amplifier. (See troubleshooting notes on the last page). To adjust, attach the Videolynx to a video source and antenna. While observing a received picture, turn the control CCW until the picture goes black. Then turn the control in the opposite direction *just until* the picture appears and is stable. Use the same procedure when using the Videolynx with an external linear power amplifier for the first time.

Video-Lynx

Specifications:

Video

Video Input: NTSC or PAL composite video (1V P-P) SMPTE STANDARD
NTSC 525 Line 60 Hz
PAL 625 Line 50Hz

RF

Center frequency without modulation: 433.92MHz +/- 50Khz
Output level: +18.5 – 14.5dBm Average Sync Tip power (With black Burst) into 50 ohm resistive
Modulation type: High level amplitude modulation
Spurious output: Harmonics at least –30dB down

VCC

Supply Voltage: 9V DC (+/- 300mV)
Current draw 40 – 65 mA

Troubleshooting:

Here are a few hints that will help you solve some common problems.

Unstable Picture:

The Videolynx434 provides a 50 ohm antenna match. If you use anything other than 50 ohm coax to feed the antenna, severe RF reflections or high SWR may occur. This could result in the output amplifier of the Videolynx434 to become unstable, usually this will show up as a distorted received image. Remember the Videolynx434 is a relatively high power output device for its class. Therefore it is vital to provide good antenna matching. ***Supplying it with a properly matched antenna is critical.***

If for any reason you cannot supply a matched antenna system, like in the case of a R/C (model rocketry etc) type application, (where you are constrained to using a small 1/4 wave piece of wire for an antenna) you may compensate for any video instability by adjusting the linearity control clockwise. This reduces the power output of the Videolynx434 which in turn will stabilize the picture by reducing the RF energy that is reflected back to the Videolynx. However this may come at the cost of a reduced power output. Therefore its best to provide a good antenna system (50 ohm, at 433.92MHz) for optimal operation of the Videolynx434 .

The linearity/bias adjustment trimmer located in the Videolynx434 is a very critical adjustment. This control effects both the video quality as well as RF power output. The nature of an amplitude modulated video signal are such that a video signal with lots of contrast will result in a lower power output level while a video signal that has less contrast will provide a much higher RF power output. Adjusting the linearity control fully clockwise will result in the lowest power setting with greatest contrast and vice versa. In order to obtain the highest RF power output while achieving good picture, adjust the linearity control to the most counter clockwise position and then gradually turn the control in the clockwise direction just until a good quality image is received. This will be the optimum video to power output position.

Notice:

The Videolynx434 is an Amateur Radio ATV transmitter. The transmitter can ONLY be operated by a Technician class or higher licensed Radio Amateur in the USA and for legal purposes per 47 CFR part 97 of the FCC Rules. 97.113 of the FCC Rules prohibits Amateur Radio frequencies to be used to further any business purpose whether profit or non-profit. With few exceptions per 97.111 all transmissions must be directed to at least one other licensed Radio Amateur. Amateur Radio is intended for personal or hobby non-commercial communications between licensed Radio Amateurs. With the exception of running less than 1 Watt for radio control purposes, Amateurs must identify with their call letters plainly seen in the video every 10 minutes for extended transmissions and at the end of every transmission per 97.119.