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ELECTRONICS

ATVR Amateur Television Receiver

The ATVR series of receivers is designed to output composite video, line level and speaker audio and is crystal controlled on your specified video carrier frequency. The intended use is for repeater or links, but can also be used for base stations where a monitor rather than a TV set is available. There are models for each of the three most used amateur TV bands: 420-450, 902-928 and 1240 to 1300 MHz. The VRC-45 45.75 MHz IF/receiver module is common to all three bands, but each has its respective bands a tuneable TVC-2G, TVC-9 or TVC-12G downconverter board and respective TVCS synthesizer board. There are no internal adjustments you need to make, they have been done for your unit, however the individual module data sheets are provided for your specific band incase you want to change frequency, or you add an antenna mounted preamp at a later date which will require a system gain adjustment to the VRC-45 board with a DC Voltmeter.

Panel controls and jacks:

VIDEO OUTPUT 1 & 2 = 1 to 1.5 Volt peak to peak nominal composite video dual outputs to drive resistively terminated 75 Ohm coax lines to the repeater transmitter video input and/or video monitor, VCR, etc. DC level is 1.5-3V. Make sure that the device you drive is DC resistively terminated rather than capacitively coupled by checking with an Ohm meter. Repeater applications should use RG6 coax, others may use any good grade of RG59. There are no internal adjustments for video level, however if your video device cannot take more than one volt peak to peak without distorting, you can put a series resistor (up to 68 Ohms) in the center lead of the plug at the ATVR end to adjust the level - a scope is suggested for proper level adjustment. When plugging or unplugging into the RCA jacks, always push or pull straight in or slightly twist clockwise to minimize the chance that the jack will loosen, never twist counter-clockwise.

LINE AUDIO OUT = nominal fixed 1 volt peak to peak into 10K Ohm load. Normally this output is connected to the repeater transmitters line audio input through a shielded cable. It can also be connected to a VCR or monitor audio input. Audio is squelched by an adjustable 10K pot during periods of no received signal.

SPKR AUDIO OUT = Speaker output. A 8 to 16 Ohm speaker may be connected for local audio monitoring. Shielded cable is suggested for repeater applications to minimize desense from RF pickup. The adjustable 10K pot sets the speaker volume level, but has no effect on the line level audio. This audio is also squelched.

ANTENNA = RF input from antenna. Low loss Belden 9913 or hard line is recommended for repeater applications, or 8214 with a little more loss but more flexible for others. The antenna must be made for the particular band and have a low VSWR for optimum sensitivity and stability. Preamps ahead of the ATVR are not necessary and should not be used unless mounted at the antenna with just enough gain to overcome the coax loss - in this case the 100 Ohm IF gain pot on the VRC45b will have to be reset to 6Vdc with no signal input for proper system gain and AGC range. Unless the coax loss exceeds 3dB, an antenna mounted preamp need not be added. In the repeater application, the bandpass filter must always be on the antenna side of the coax to prevent overload or intermod in the preamp stage.

13.8 VDC = External power requirement of a regulated +12 to 14 Vdc @ 250 mA. There is an internal 1/2 Amp fuse and 16 Volt zener to help protect against reverse or over voltage spike damage, however, take great care soldering the positive power lead to the top of the feed-thru capacitor and connecting to your power supply. Normally the positive lead is Red and ground (connect to the adjacent solder lug marked G) is Black. The on/off toggle switch is in the positive power lead between the internal fuse and the three boards.