
Video/Audio
Transmission System
Series VA700
(formerly Series DVL4A)

November 2000

VIDEO/AUDIO TRANSMISSION SYSTEM INSTRUCTION MANUAL *SERIES VA700 & VA700M*

General

The Series VA700 is a transmission system that converts video and audio signals (RS170, NTSC, PAL, SECAM) to fiber at the transmitter interface, and reconverts the signal to copper at the receiver.

Connections

Consult the diagrams for all pinouts.

Indicators - Receiver

The RED LED indicates that POWER is attached to the receiver and that the internal fuses and voltage regulators are working.

The GREEN LED turns ON when sufficient optical power (light) is received by the module from the fiber optic transmitter for the fiber optic receiver to operate properly.

If the GREEN LED is OFF, check that (1) the fiber optic transmitter is turned ON, and the fiber optic cable is plugged into the transmitter optical connector; (2) the fiber optic cable is plugged into the receiver optical connector; and (3) the RED LED is ON.

If the GREEN LED is still OFF, either (1) the fiber optic cable is broken, (2) there is too much optical attenuation in the fiber optic cable, or (3) either the transmitter or receiver fiber optic modules are defective. In this case, please call Radiant Communications.

Indicators - Transmitter

The RED LED turns ON when power is applied to the transmitter. This indicates that there is power supplied to the transmitter and that the internal fuses and regulators are functioning properly.

Gain Control

Can boost or lower video signal on RX module.

Audio Connection

For balanced audio, ground wire must be connected to center of “Audio In: and “Audio Out”. For single-ended (unbalanced) audio, connect Pin 1 to Pin 3 (ground - shield). Input/output audio at pin 2. For explanations on AUDIO BALANCED and UNBALANCED see page 10.

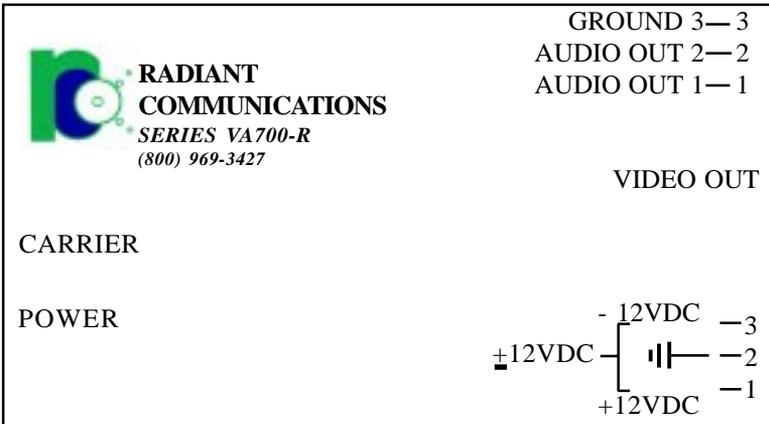
Power Connection

Pin 1 +12V
Pin 2 GND
Pin 3 -12V

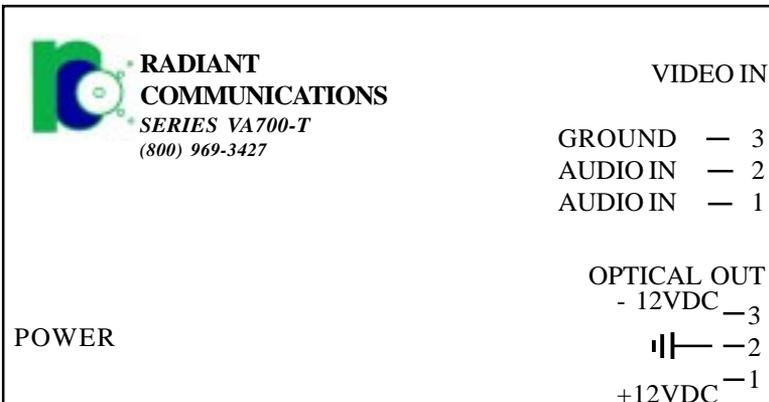
Problems

In case of problems, call Radiant Communications Technical Support toll-free at **1-800-969-3427**.

VA700-R



VA700-T



System Specifications

POWER

Requirements	+/- 12VDC @500mA
Input/Output Level	Video: 1V p-p
.....	Audio: 0dBm (+10dBm max)
.....	600 ohm balanced or unbalanced
Input/Output Impedance	Video: 75 ohms
.....	Audio: 10K ohms
Signal-to-Noise Ratio	Video or Audio:>60dB @ 10dB attenuation
Audio Distortion	<1%
System Bandwidth	Video: 8MHz
.....	Audio: 20Hzto 20kHz
Gain Control	Fully automatic (AGC) based
.....	on received optical power

OPTICAL

Optical Wavelength	1310nm/1550nm
Max. Attenuation	18dBm

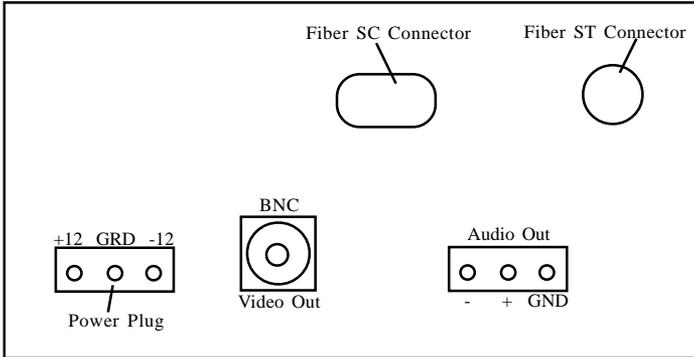
CONNECTORS

Video	BNC
Audio	3-pin screw terminal
Optical	AT&T type ST ceramic connectors
.....	(other connector types optional)

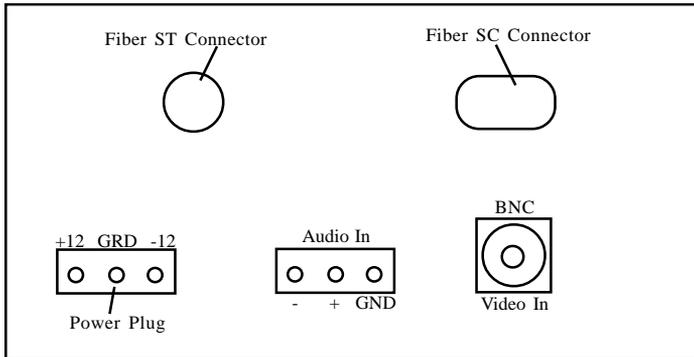
ENVIRONMENTAL

Ambient Temperature Range	32°F to 120°F (0°C to +50°C)
Storage Temperature Range	-40°F to +185°F (-40°C to +85°C)

VA700-R Rear Panel



VA700-T Rear Panel



IMPORTANT INFORMATION

The power supplies enclosed have been pre-wired due to the unconventional colors of the transformer leads. For future reference, the leads and their corresponding colors are listed in the table below. If there are any further questions regarding the matter, please contact technical support at 1-800-969-3427.

+12V	Pin 1
Ground	Pin 2
-12V	Pin 3

Audio Balanced & Unbalanced

Balanced vs. UnBalanced Audio Lines

Balanced lines use three wires with the outside wire being a shield around the inside two. The inside two wires are thus shielded from external RF. The common connectors for balanced audio is the XLR connector.

Unbalanced audio lines use just two wires, there is no shield. The signal passes down the two wires unshielded from outside RF.

Home stereo connection cables are unbalanced line audio. The typical professional quality microphones use balanced line audio.

Balanced line connectors are XLR,

unbalanced line connectors are common to CamCorders and to stereo equipment

Unbalanced Audio

Most domestic audio equipment has unbalanced audio inputs and outputs. This means that the audio output (left, right, or mono) appears on a single wire, and is referenced to "0V" or "Ground". Typical connectors used are RCA "phono" connectors, DIN plugs/sockets, and 0.25" (6.3mm) or 3.5mm jack plugs/sockets.

Unbalanced audio is fine for the domestic environment, and for line-level signals in a typical broadcast studio. Problems start to occur if the signals are being carried over long distances, especially if the source and destination have separate mains supplies.

Balanced lines

Balanced lines are different and a lot better. They use two signal conductors; one carries the audio signal and the other carries an inverted copy of it. At the receiving end, a special circuit takes the difference between the normal and inverted signals. Any interference which gets into the cable is cancelled out because it affects both signals equally.

Balanced cables have a screen too, but it plays no part in carrying the signal. If the screen forms part of an earth loop, there will still be no interference.

What is an earth loop?

It is a loop of wire formed when you join two items of earthed equipment with another earth wire. The classic example is when you connect the unbalanced output of your amplifier (which is connected to earth via its mains lead) to the unbalanced input of your mixer (which is also earthed via its mains lead) The screen of the audio cable acts like another earth wire, joining the amplifier's and mixer's earth points together.

The earth loop then goes; from your amplifier's output, along the screen of the audio cable, to the mixer input, via the innards of the mixer to the mixer's mains lead, down the mains lead to the wall socket, along the mains earth wire to the socket where your amplifier is plugged, up the amplifier's mains lead, via the innards of the amplifier back to the amplifier output!

The huge loop of wire acts like an antenna picking up interference from mains wiring. This causes large currents to flow in the loop. The current flowing in the screen of your audio cable is picked up as an audio signal. It sounds like BBBZZZZZZZZZZL....

Connections ???

Balanced to Balanced

If you only ever connect balanced equipment to other balanced equipment, you should never get any buzzes. You will only get audio noise when your units are saturating or exceeding optical window budget.

Unbalanced to unbalanced

The most difficult is when both pieces of equipment are unbalanced. It is vital to break the earth loop. Since you can't break the screen of the audio cable, you must 'lift' the ground of the TX and RX pin on VA700 set. If for instance you use pin number 1 & 3 for your audio transmit and receive, connect pin 2 to ground which is pin 3. You must do it on both units (Transmitter and Receiver).

If you get noise --check:

Broken leads are a very common cause of interference.

- Open XLR and jack plugs, and check that all wires are firmly connected in place.
- Wiggle and stretch the cable while feeding a signal through it, to check for breaks within the cable.
- Plug and unplug connectors several times to see if you have a dirty contact (it's a good idea to do this to every connector in your system once a year)
- Check units for saturation
Make sure that you are not exceeding maximum optical dynamic range for these units.

If this doesn't produce an improvement, call RCC Tech Support 1-908-757-7444 ...

Warranty

Radiant Communications Corporation warrants that at the time of shipment the products manufactured by Radiant Communications Corporation will be free from defects in material and workmanship and will conform to the specifications furnished by or approved by Radiant Communications Corporation.

Should any defects appear within one year from date of shipment, Radiant Communications Corporation shall, at its sole discretion repair or replace the defective material. Such material shall not be accepted for return or repair without prior notification of Radiant Communications Corporation.

Return shipments to Radiant Communications Corporation shall be at the buyer's expense. Radiant Communications Corporation will return said equipment prepaid via the best way.

The foregoing warranty is in lieu of and excludes any and all other expressed or implied warranties of merchantability or fitness, or otherwise. Items manufactured by any supplier other than Radiant Communications Corporation assumes no responsibility for the performance or reliability of the product.

Radiant Communications Corporation will not be liable for any special or consequential damages, or for loss, damages, or expense directly or indirectly arising from the use of the products or any inability to use them either separately or in combination with any other equipment or material or from any other cause.

This warranty does not extend to any product manufactured by Radiant Communications Corporation that has been subject to misuse, neglect, accident, improper installation, act of God, or an violation of the instructions furnished by Radiant Communications.