APPLIED WIRELESS©

*Long Range Wireless Applications*

**USER'S MANUAL**

900 MHz Audio / Video Transmitter
Model No. AVT900-3A

## Product Description

Model AVT900-3A from Applied Wireless, Inc. is a high quality transmitter designed to broadcast standard NTSC or PAL video signals, along with line-level audio signals, to an appropriate receiver (such as Applied Wireless Inc.'s model AVR900-3). Conforming to FCC Part 15 requirements for unlicensed use, Model AVT900-3A will transmit over distances up to 750 feet.* The range may be increased substantially through the use of a directional antenna (such as a flat panel or yagi) at the receiver.

The AVT900-3A transmitter provides three user-selectable channels of operation to enable simultaneous operation of multiple transmitters in a common area. The transmitter incorporates precise FM modulation and sophisticated filters to ensure stable, interference-free high quality color or B/W video plus audio reception.

The AVT900-3A transmitter is housed in a small yet rugged aluminum extrusion enclosure (dimensions: 3.25"W x 2.5"L). An AC power converter (12VDC) is supplied, along with RCA phono-type video and audio cables, as well as a combination multi-conductor power/audio/video cable assembly, for connection to video and audio sources.

The AVT900-3A transmitter is well-suited for many diverse applications, including distribution of AV entertainment content throughout a building, commercial and industrial surveillance, monitoring, security, access control, etc.

## Using the AVT900-3A in Non-Stationary Applications

If the AVT900-3A is to be used in an application in which it will be moving while broadcasting (such as with a hand-held video camera, for example), it is strongly suggested that the Applied Wireless Diversity Receiver (model DAV900-3) be utilized. This advanced multi-antenna receiver will minimize the effects of multipath interference to provide more stable video images and audio reproduction. The improvement in performance is especially noticeable when the distance between the transmitter and receiver is extended and/or obstructions exist between them.

* Unobstructed, straight line-of-sight range, when used with the transmitter's standard quarter-wave antenna (included).

**Table 1**

| Specifications | |
|---|---|
| Operating Frequency | |
| Channel 1 | 907 MHz |
| Channel 2 | 915 MHz |
| Channel 3 | 923 MHz |
| RF Output Power | 1 mW (0 dBm) |
| Operating Voltage | 7.5 to 18VDC |
| Operating Current | 65 mA |
| Video Frequency Response | 0.5 – 5.0 MHz |
| Signal to Noise Ratio | 60 dB |
| FM Deviation (@ 1V P-P input) | +/- 3 MHz |
| Differential Gain Error | 3% p-p (max) |
| Differential Phase Error | 3% p-p (max) |
| Harmonic Suppression | -45 dBc |
| Antenna Output Impedance | 50 Ohms |
| Operating Temperature Range | -20°C to +70°C |
| Storage Temperature Range | -50°C to +150°C |

## Installation Instructions

### Before Beginning the Installation

Plan the installation of the AVT900-3A transmitter carefully. The physical location and orientation of the unit itself will have a significant influence on reception quality at the receiver, particularly at longest ranges. The unit, and its standard antenna, should be positioned vertically (pointing either up or down). If necessary, use double-sided foam tape or hook & loop fasteners (not supplied) to secure the unit to a vertical surface. Also, keep in mind that the RF signal from the transmitter will travel through most non-metallic building materials (wood, stucco, brick, etc.), however *maximum stated reception range is based on unobstructed line of sight conditions.*

### Selecting the Channel of Operation

Referring to Figure 1, use a small flat-blade screwdriver to select the channel (frequency) on which the transmitter will broadcast, by aligning the triangle-shaped pointer (not the screwdriver slot) to the number of the desired channel. Be sure to set the receiver to the matching channel. Channels are as follows:

Channel 1: 907 MHz
Channel 2: 915 MHz
Channel 3: 923 MHz
Any other setting of the channel selector (0, 4, 5, 6, 7, 8, 9) defaults to Channel 1.

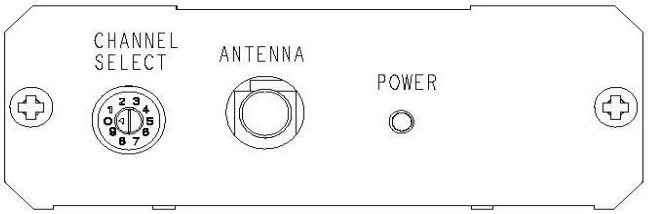



Figure 1 - Front Panel

If two AVT900-3A transmitters are to be used simultaneously in a common area (so as to broadcast two different audio & video sources), set one unit to Channel 1 and the other unit to Channel 3. It is not advisable to attempt to use three units simultaneously.

**Connecting Audio and Video to the AVT900-3A**
Following the guidelines below, connect line level audio and video sources (outputs from a DVD player, for example) to the corresponding line-level input jacks on the transmitter's rear panel (refer to Figure 2).

**Audio –** If a microphone is to be used as the audio source, an external microphone preamp (not supplied) must be used to raise the microphone's output signal to the required line level.

**Video –** The AVT900-3A's video input presents a terminated 75-ohm load to the output of the video source device. Accordingly, no other device(s) besides the AVT900-3A should be connected to the video source. If any additional device(s) must be driven by the source device, a video distribution amplifier (not supplied) must be used.

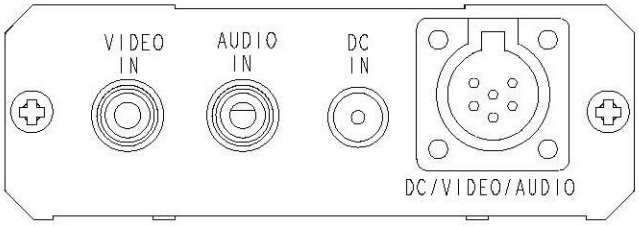



Figure 2 – Rear Panel

**Connecting Power to the AVT900-3A**
The AVT900-3A requires an external power source of between 7.5 and 18 volts DC. A plug-in power converter (12VDC) is supplied with the AVT900-3A. If preferred, a battery (not supplied) may be used instead of the power converter. A 9volt alkaline battery will operate the transmitter continuously for several hours.

***CAUTION:*** **Do NOT apply power to the AVT900-3A unless the supplied antenna is attached to its mating jack on the front panel. Powering the transmitter without an antenna may result in failure of the transmitter's RF output device and void the warranty.**

To use the supplied power converter, insert its 2.1mm plug into the DC IN jack on the transmitter's rear panel (refer to Figure 2). Plug the converter into a live 120VAC outlet. The transmitter's red Power indicator LED (on the front panel, refer to Figure 1) should illuminate.

To connect a battery, refer to Figure 3 and Table 2.

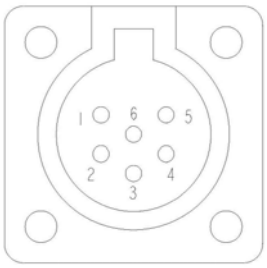
**Using the Combination Power/Video/Audio Input Cable**

As an alternative to the standard audio/video interconnect cable, the supplied combination Power/Video/Audio cable assembly may be used to connect the AVT900-3A. The red and black wires of the cable may be used to connect a suitable battery (if the plug-in power converter will not be used). Connect the red wire to the positive (+) terminal of the battery; connect the black wire to the negative (-) terminal of the battery.

Plug the Combination cable's audio (white) and video (yellow) plugs into the corresponding line level output jacks on the source device.

Referring to Figure 3, the pinout of the transmitter's Combination Power/Video/Audio jack, and its mating plug on the Combination cable, is detailed in Table 1.

**Figure 3**




Combination Jack
(on Front Panel)


Combination Cable
Plug (rear view)

**Table 2**

**Combination Connector Pinout**

| Pin | Circuit |
|---|---|
| 1 | DC Power In (+7.5 to +18 volts) |
| 2 | DC Ground |
| 6 | Video In (+) |
| 3 | Video Ground |
| 5 | Audio In (+) |
| 4 | Audio Ground |

**INSTRUCTION TO THE USER (required by the FCC)**

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.



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