

STINGRAY

2.4 GHz Wireless Video/Audio/Alarm Transmission System

**Installation
and
Operating Instructions**



Quick Start Guide

1• Verify proper operation of camera and monitor/event recorder using coaxial cable prior to installing wireless link per the diagram below.

2• Connect the power adapter to the #6 terminals on the transmitter and receiver units per the picture below.

3• Install transmitter (VST2500) and receiver (VSR2500) units in desired location to a wall using the supplied mounting hardware as shown below. For optimum performance the units should be mounted at a height of 6-7 feet above the ground and no more than 300 feet apart.

4• Connect the video audio and alarm inputs and outputs, following the color schemes on the cables and connectors.

5• Plug the AC adapters into the wall outlet. The LED on the unit should come on and blink several times. The number of blinks indicates the channel. Both units must be on the same channel for proper operation.

6• Adjust the units until the best picture is obtained. Normally this will occur when the units are oriented as shown below, but in some cases the best picture may occur when the units are not aimed directly at each other.

7• After the picture has been optimized tighten the bracket down using the knob on the side of the bracket as shown below.

Your Trango Wireless Video System

Congratulations on choosing Trango Systems, Inc. to fulfill your wireless video needs. Unpack your system carefully. If any items are missing, notify your sales representative. If an item appears to be damaged from shipment, replace it in its packing material and notify the shipper.

Save the packaging for further storage of the equipment.

Service:

If the unit ever needs repair service, contact your Trango Systems, Inc. distributor for return authorization and shipping instructions.

FCC Information:

Note: 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 these 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 correct the interference by one of more of the following measures:

- 1) Reorient the receiving antenna;
- 2) Increase the separation between the affected equipment and the receiver;
- 3) Connect the affected equipment to an outlet on a different circuit from that which the receiver is connected to;
- 4) Consult the dealer and/or experienced radio/TV technician for help.

**VST2500: # NCYVST2500
CANADA: XXTBDXXX**

IMPORTANT NOTE:

Intentional or unintentional changes or modifications not expressly approved by the party responsible for compliance must not be made. Any such modifications could void the user's authority to operate the equipment and will void the manufacturer's warranty.

System Description:

The STINGRAY Wireless Video System is a professional quality system designed for sending composite NTSC or PAL video, audio, and alarm signals using 2.4 GHz wireless technology. The system consists of a VST2500 transmitter, VSR2500 Receiver, and power adapters. The system is ideal for permanent or temporary video links due to its portable nature and easy installation. It is *not* designed for operation while in motion. It is not designed for outdoor operation

Installation Hints:

The STINGRAY system is factory-configured for operation on channel 1 with right and left audio operational. The system has a very directional transmission pattern that increases the transmission range while rejecting interference. If installed properly, the system will provide superior picture quality, even when transmitting through walls in a typical home or office setup.

To obtain the best picture quality and transmission distance, the following rules of thumb should be followed:

- 1) Mount the transmitter and receiver antennas above human and mechanical traffic but away from metallic objects.
- 2) Keep the transmission path as open as possible. Objects such as walls, ceilings and metallic objects near the transmission path can reflect signals and may reduce the transmission distance.
- 3) If operating more than one system in an area, set the channels as far apart as possible on each system (i.e. system 1 use channel 1, system 2 use channel 4).

Transmitter Operation

Figure 2 shows the interior of the VST2500 transmitter and the functions of each control and input/output.

IMPORTANT NOTE: Any modification to the antenna unit may void the user's authority to operate the equipment and will void the manufacturer's warranty.



CAUTION

DO NOT APPLY VOLTAGE TO THE ALARM PINS. DAMAGE TO THE UNIT WILL RESULT.

1. Power – 6-12 Volts DC
2. Alarm 1/2 inputs – DRY CONTACT ONLY
3. Right audio input – 1 Vpp 600 Ohm terminated RCA-F
4. Left audio input – 1 Vpp 600 Ohm terminated RCA-F
5. Stereo/Alarm switch
6. Video input – 75 Ohm terminated RCA-F
7. Channel DIP switch
8. Status LED

• FIGURE 2•

2.4GHz Transmitter Inputs & Controls:

1. POWER INPUT

Accepts a 6-12 Vdc power source such as the standard 7 Vdc adapter (Trango part number PT07800-1), or an optional battery. The nominal current draw is 145 milliamperes. If using an adapter from a third party, use a well-regulated 200 mA minimum output supply. **Do not use the PT07800-1 to power a camera or video distortion may occur.**

2. ALARM INPUTS

These inputs are used to send alarm signals to the receiver. They sense an open or closed state and reflect that state to the receiver whenever it changes. The alarm inputs operate independently of each other. The transmitter is capable of sending *either* alarms *or* stereo audio, selectable via the Stereo/Alarm switch.

3/4. RIGHT & LEFT AUDIO INPUTS

Designed to mate to standard RCA connectors, each input accepts 1 Vpp audio input and is terminated with 600 Ω unbalanced configuration. It is designed to interface to "lineout" audio sources. A preamplifier must be used to connect a microphone to this input.

5. STEREO/ALARM SWITCH

When this switch is in the "R Audio Active" position, stereo audio transmission is enabled. This permits the transmission of stereo audio with no alarms. When it is in the "Alms Active" position, R audio is disabled. In its place, the alarms are transmitted. The left audio(mono) is always active.

6. VIDEO INPUT

Designed to mate to a standard RCA-F connector, this input accepts 1Vpp video in both NTSC and PAL formats. This input is terminated with 75 Ω . RCA-BNC adapters are available for use with some cameras and VCRs.

7. CHANNEL DIP SWITCH/ STATUS LED

This switch controls the transmitter channel. Remember to change the receiver channel as well, since it is not automatically changed when the transmitter channel is changed. The status LED will blink to indicate the channel number after the switch is changed.



CAUTION

DO NOT APPLY EXTERNAL VOLTAGES TO THE ALARM INPUTS AS PERMANENT DAMAGE TO THE UNIT MAY RESULT. USE ONLY DRY CONTACTS WITH THESE INPUTS.

Receiver Operation

Figure 4 shows the front panel of the VSR2500 receiver and the functions of each control and input/output.

1. **Power – 6-12 Volts DC**
2. **Alarm 1/2 relay outputs – 1
Amp 40 Volt AC/DC Rated**
3. **Right audio output – 1.5 Vpp
RCA-F**
4. **Left Audio output – 1.5 Vpp
RCA-F**
5. **Stereo/Alarm switch**
6. **Video output-75 Ohm
terminated RCA-F**
7. **Channel DIP switch**
8. **Status LED**

• FIGURE 4 •

2.4GHz Receiver Inputs/Outputs & Controls:

1. POWER INPUT

Accepts a 6-12 Vdc power source such as the standard 7 Vdc adapter (Trango part number PT07800-1), or an optional battery. The nominal current draw is 400 milliamperes. If using an adapter from a third party, use a well-regulated 6-12Vdc/500mA output supply.

2. ALARM OUTPUTS

These are dry contact relay outputs which can sink 1 ampere at 40 V AC/DC. When the corresponding transmitter alarm input closes or opens, this output will close and open as well. Consider these outputs mirrors of the transmitter alarm inputs. These outputs are independent and can be used to turn on peripheral devices such as video recorders and audible alarms.

3/4. RIGHT & LEFT AUDIO OUTPUTS

Designed to mate to a standard RCA male connector, this provides a 1.5 Volt peak-to-peak audio output and should be terminated in a minimum 600 Ω load, as is found in most "line in" audio inputs.

5. STEREO/ALARM SWITCH

When this switch is in the "R Audio Active" position, stereo audio transmission is enabled. This permits the transmission of stereo audio with no alarms. When it is in the "Alms Active" position, alarm transmission is enabled. Left audio reception is always enabled.

7. VIDEO OUTPUT

Designed to mate to a standard RCA male connector, this provides a 1 Volt peak-to-peak video signal output. This must be terminated with 75 Ω . RCA to BNC adapters are available for use with some monitors and VCR inputs.

8. CHANNEL DIP SWITCH/ STATUS LED

This switch controls the receiver channel. Remember to change the transmitter channel as well, since it is not automatically changed when the receiver channel is changed. The status LED will blink to indicate the channel number after the switch is changed.



CAUTION

**DO NOT APPLY EXTERNAL VOLTAGES TO THE ALARM OUTPUTS.
PERMANENT DAMAGE TO THE UNIT MAY RESULT.**

Troubleshooting the System

INTERFERENCE

If interference such as lines in the pictures is observed, changing the transmission channel may cure the problem.

Also, AC generators in close proximity to the transmitter or receiver may cause lines in the picture. Move the unit away from the source of the interference.

NO PICTURE

Check that the transmit and receive channels are set the same, and make sure the LED is glowing.

Verify all connectors are tight.

POOR PICTURE QUALITY

Raise transmitter and receiver antennas above ground and away from obstacles and traffic, including foot traffic.

VIDEO TOO DARK

Make sure that any monitors/peripheral equipment connected to the video source are set to high impedance termination since the VTX2500 has a built-in 75 Ω termination.

VIDEO TOO BRIGHT

Make sure that the receiver video output line is terminated with 75 Ω .

Check the Technical Support section of our website at <http://www.trangosys.com/> for additional assistance.

Specifications

VST2500 Transmitter

RADIO SECTION:

<i>Frequencies:</i>	Channel 1: 2413 MHz
	Channel 2: 2432 MHz
	Channel 3: 2451 MHz
	Channel 4: 2470 MHz
<i>RF Output Power:</i>	Meets FCC Part 15.249 radiated field strength of 50 mV/m at 3 meters with CP omni or CP patch antenna provided with unit.

VIDEO SECTION:

<i>Input Level:</i>	1 Vpp per NTSC/PAL standard
<i>Input Impedance:</i>	75Ω unbalanced

AUDIO SECTION:

<i>Input Level:</i>	1 Vpp Nominal
<i>Input Impedance:</i>	600 Ω

ALARM SECTION:

<i>Input Level:</i>	Normally open contact closure input on both Alarm 1 and Alarm 2. The current state of the input (open or closed) is transmitted to the receiver which reflects the transmitter alarm input states. DO NOT APPLY VOLTAGES TO THESE INPUTS AS DAMAGE TO THE UNIT WILL OCCUR.
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POWER SECTION:

<i>Input Voltage:</i>	7 Vdc nominal, 6-12 Vdc range
<i>Current Consumption:</i>	145 mA typical
<i>Max. Ripple Input:</i>	1 Vpp

MECHANICAL:

<i>Material:</i>	Cold Rolled Steel with ABS radome
<i>Finish:</i>	Off-white powdercoat
<i>Size:</i>	x" W x y"L x z"H without antenna
<i>Weight:</i>	xxxx lb

ENVIRONMENTAL:

<i>Operating Temp.:</i>	0 to 50 °C
<i>Storage:</i>	-40 to 85 °C

VSR2500 Receiver

VIDEO SECTION:

<i>Video 3dB BW:</i>	5.8 MHz (Conforms with NTSC/PAL standard)
<i>Video Diff. Gain:</i>	< 5%
<i>Video Diff. Phase:</i>	< 5 degrees
<i>Chr. To Lum. Gain:</i>	70% to 107%
<i>Chr. To Lum. Delay:</i>	±60 nS
<i>Output Load Imp.:</i>	75 Ω
<i>DC Clamping:</i>	Back Porch with 0 V typical DC offset

AUDIO SECTION:

<i>Audio Bandwidth:</i>	50 Hz to 15 kHz (3 dB)
<i>Output Load Imp.:</i>	600 Ω
<i>Output Level:</i>	1.5 Vpp typical

ALARM SECTION:

<i>Data Rate:</i>	19,200 bps
<i>Coding Scheme:</i>	32 bit command/address, 8 bit data with checksum
<i>Output Level:</i>	Reflects state of transmitter alarm inputs – updated twice per second

POWER SECTION:

<i>Input Voltage Range:</i>	7 Vdc nominal, 6-12 Vdc
<i>Max. Ripple Input:</i>	1 Vpp
<i>Current Consumption:</i>	400 mA nominal

MECHANICAL:

<i>Material:</i>	Cold Rolled Steel with ABS radome
<i>Finish:</i>	Off-white powdercoat
<i>Size:</i>	x" W x y"L x z"H without antenna
<i>Weight:</i>	xxx lb

ENVIRONMENTAL:

<i>Operating Temp.:</i>	0 to 50 °C
<i>Storage:</i>	-40 to 85 °C
<i>Humidity:</i>	95% non-condensing
