

# **Grand RF-Guard CMOS**

**2.4Ghz AV Sender built-in color CMOS video camera**

## **User's Manual**

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**Federal Communications Radio Frequency Interference Statement.**

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 when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual 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 or 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.
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**Notice :**

- (1) The changes or modifications not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.
- (2) Shielded interface cables and AC power adapter, if any must be used in order to comply with the emission limits.
- (3) This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment, when installed as directed. The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

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# CHAPTER 1

## Welcome to Grand RF- Guard CMOS

(2.4Ghz AV Sender built-in color CMOS video camera)

### 1.1 Introduction

Grand RF-Guard CMOS is a 2.4GHz audio/video transmitter and receiver with a 1/3" color CMOS video camera and microphone integrated into the transmitter. It includes a stand that can be mounted on the wall or ceiling. The receiver's auto function cycles through the channels every 5 seconds to search for the strongest signal. Grand RF-Guard CMOS transmits CMOS images and audio up to 100 meters in open areas (30 meters through walls, etc.). It is ideal for home security, including child and room monitoring.



### 1.2 Features

- Ideal for home security, including child and room monitoring.
- View or record the results on TV, VCR or computer with a video capture card.
- Dipole antenna provides optimal video and audio reception.
- Built-in microphone for audio monitoring.
- Four channels available for best quality selection.
- 300 TV lines; 300,000 pixels; 3 lux.
- Maximum working range of 100 meters.
- Low Power Consumption: 0.5 W (MAX)
- Optional Battery Pack provides up to 4 hours of operation.

#### Transmitter:

- ◆ 2.4~2.483 GHZ frequency range

- ◆ The world's smallest (1/3") CMOS video camera with built-in 2.4GHz wireless A/V sender
- ◆ Dipole antenna provides optimal video and audio reception
- ◆ Supports NTSC or PAL video systems
- ◆ The wireless color CMOS video camera pivots 360 degrees on mounting stand for optimal installation
- ◆ LEDs for channel indicators

**Receiver:**

- ◆ Supports Manual/Auto functions for channel selection. Auto function cycles through each channel in sequence every 5 seconds for optimal reception
- ◆ Supports 2.4GHz wireless audio and video
- ◆ Designed to minimize external interference

**1.3 Specifications:**

- NTSC & PAL system format.
- 1/3" Color CMOS IMAGE SENSOR.
- 300 TV lines 300,000 Pixels, 3 Lux.
- Receiver : Auto & Manual.
- Antenna Mode: Dipole ( Omnidirectional ); Demodulation Method: FM
- Remote Entertainment, Attendance, Surveillance

**1.4 CMOS Transmitter:**

**Color CMOS video Transmitter:**

Type Standard	NTSC/PAL
Pick Up Elements:	1/3" color CMOS( Omnivision ) Sensor, 300,000 Pixels
Frequency 4CH slide Switch PLL Control	ISM Band: 2400Mhz ~ 2483 Mhz. CH1=2410MHz CH2=2430MHz CH3=2450MHz CH4=2470MHz
Frequency Deviation	+/-100KHz(10°C~50°C)
Demodulation Method	FM.
RF Output Power	Vcc=3.3V, LOAD=50Ω, 10 dBm
Antenna	DIPOLE(85mm)
Horizontal scanning Frequency	NTSC 15.734KHz PAL 15.625KHz
Vertical scanning Frequency	NTSC 59.94Hz PAL 50.00Hz
Resolution	Horizontal 300 Lines

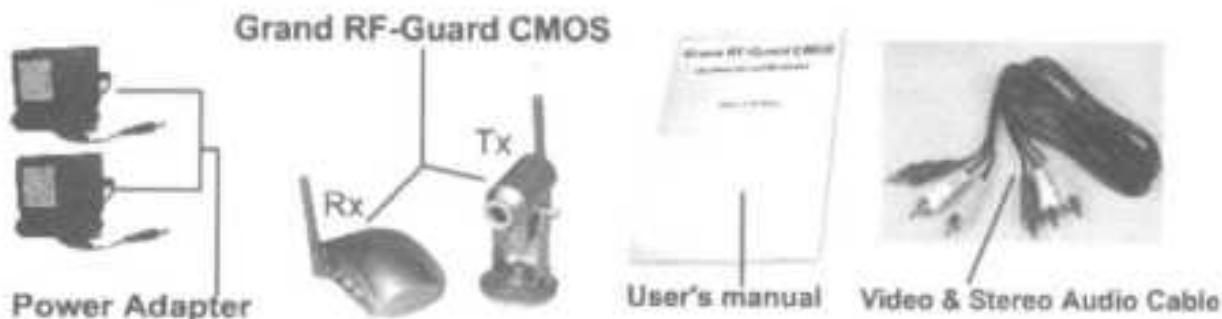
S/N ratio	Vertical line 300 Lines With AGC OFF 46dB
Minimum Illumination	3 Lux (at F1.2)
Built in	Microphone
Power Source	6V DC 500mA
Power Consumption	0.5 W MAX
Operating Temperature	10°C ~ 50°C
Operating Humidity	5% ~ 85%
Dimensions	(L)70mm*(W)58mm*(H)92mm, Antenna:85mm
Weight	95g

### 1.5 Receiver:

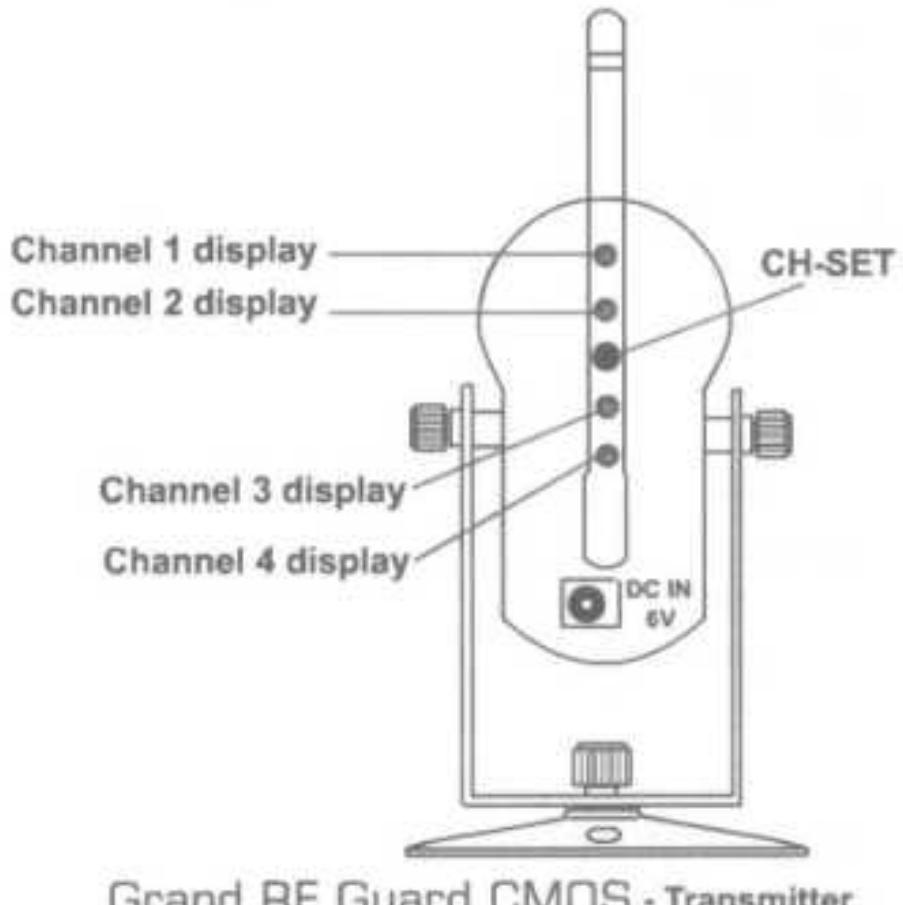
Antenna	Dipole
Video output	Composite video 1 Vp-p,75Ω
Audio output	RCA-L, RCA-R
Power Source	6V DC 500mA
Operation Temperature	10°C ~ 50 °C
Dimensions	(L)95*(W)75*(H)25mm, Antenna: 85mm
Weight	100g

### 1.6 Package Contents

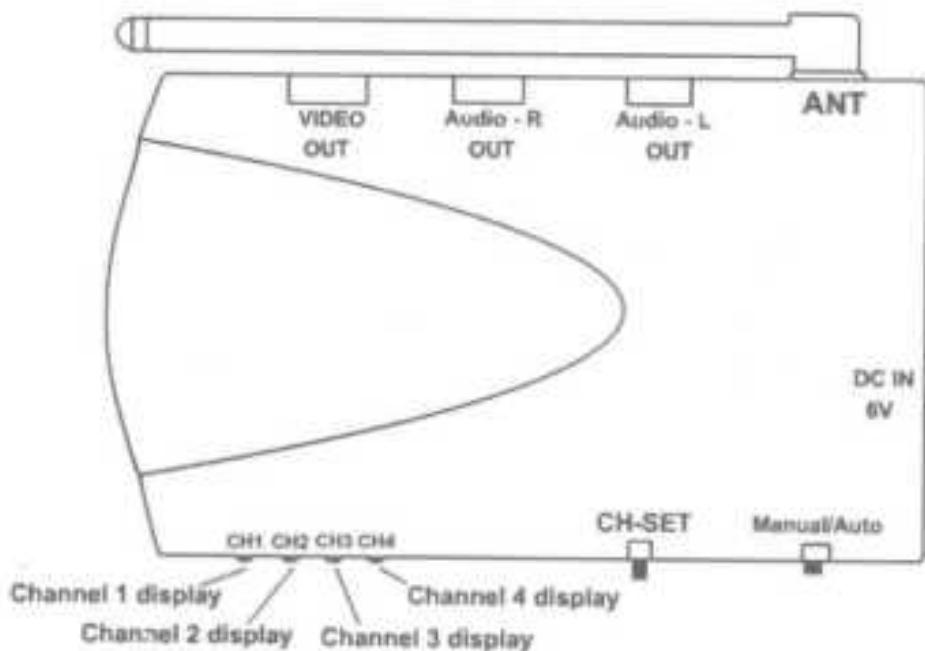
- Grand RF Guard CMOS Tx (Transmitter)
- Grand RF Guard CMOS Rx (Receiver)
- User's Manual.
- Video & Stereo Audio Cable \* 1.
- Power Adapter \*2.
- Battery box \*2(Optional)



## 1.7 Function Description



- DC IN 6V: Power connector, connects with the supplied adapter. Center is positive. (-) --- (●) --- (+)
- CH-SET : Selects channel that you wish to send.
- ANT(RF-OUT) : Sends Audio and Video signals.
- CH 1 ~ 4 display: Display the working channel that you set up.



## Grand RF Guard CMOS - Receiver

- **AUDIO OUT:** Connects Grand RF Guard CMOS Rx to the Audio IN of TV or a powered Speaker.
- **VIDEO OUT:** Connects Grand RF Guard CMOS Rx to the Video IN of TV
- **DC IN 6V :** Power connector, connects with the supplied adapter.  
(-) ----- (●) ----- (+)
- **CH-SET :** Press this tact-switch to set the channel that you wish to view & choose a desirous channel.
- **Manual/Auto:** If you use the "Manual" function, you must press the CH-SET key to select the desirous channel. If you use the "Auto " function, the channel will be running & following procedure Channel 1 → Channel 2 → Channel 3 → Channel 4 → Channel 1 → ... sequential & cyclically every 5 - 6 seconds. until you slide the switch to manual side for the channel selected.
- **ANT(RF-IN) :** Antenna for receiving Audio and Video signals

## CHAPTER 2

# Hardware Installation

### 2.1 Installation and setting up the channels

1. Grand RF Guard CMOS Tx (Wireless Transmitter): Plug-in the adapter (DC 6V ) and then set up the channel (4 selectable channels), and
2. Grand RF Guard CMOS CMOS Rx (Wireless Receiver): Link the Receiver and TV with an AV Wire, please adjust the tact-switch from the Receiver.
3. Setting up the channel that you wish to view: push the CH-SET switch, and see the channel display.
4. The users can use four wireless Transmitters ( Grand RF Guard CMOS Tx) on 4 different channels. The Wireless Receiver (Grand RF Guard CMOS Rx) can receive up to 4 difference frequency signals and display the 4 pictures in sequence.(Please refer to **NOTE**)

#### **NOTE:**

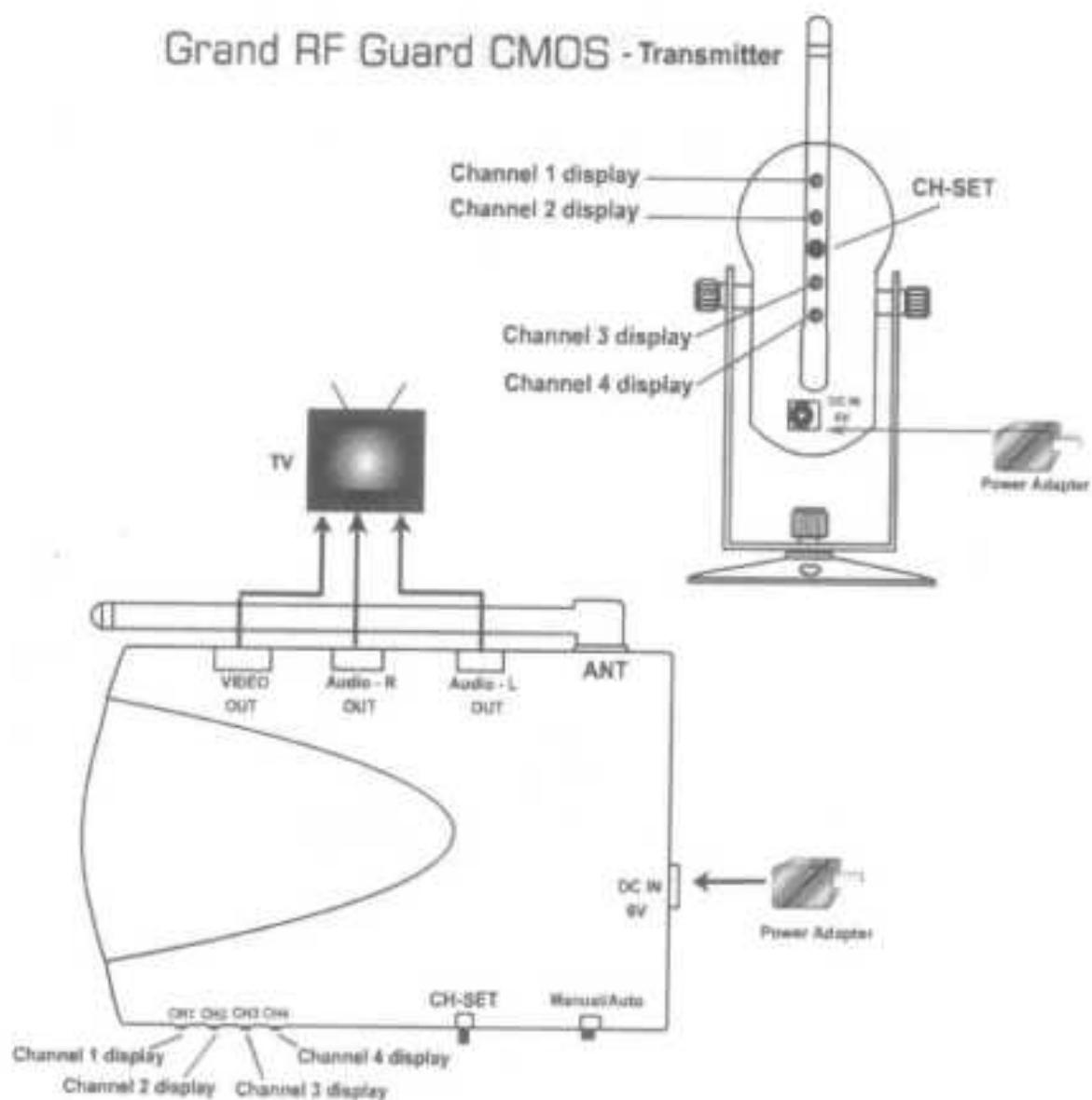
1 receiver can accept signals for 4 different channels. Please set the receiver's switch to Auto function and the receiver can receives the signals from Channel 1 to Channel 4 every 5~6 seconds.

At this time, the Receiver 1 will receive signals from the following procedure:

Channel 1→ Channel 2→ Channel 3→ Channel 4→ Channel 1→.....

The receiver will automatically change the receiving signals from Channel 1 to Channel 4 every 5~6 seconds. Please follow the sequence of function setting, if you would like to receive channel 3 of transmitting sources, please set the same channel with receiver so the channels match up.

## Grand RF Guard CMOS - Transmitter



## Grand RF Guard CMOS - Receiver

## CHAPTER 3

### Orienting Units for Optimal Performance

Grand RF-Guard CMOS broadcast their high-quality Audio and Video signal using **dipole** type antenna as show below. For the reason to get optimal performance, try to minimize the number of obstacles ( e.g. your TV or other electronics, large furniture) between the transmitter and receiver units.



## CHAPTER 4

### Trouble Shooting

Please check the following chart for a possible solution of problem. If you are experiencing, a minor adjustment may eliminate the problem.

Symptoms	Possible Solutions
No picture or sound	<ol style="list-style-type: none"><li>1. Be sure power adapter is plugged in.</li><li>2. Be sure AV cable is connected.</li></ol>
Interference Noisy picture or audio	<ol style="list-style-type: none"><li>1. Adjust receiver antenna orientation.</li><li>2. Adjust transmitter antenna orientation.</li><li>3. Select a different channel with the CH-SET on transmitter and adjust the CH-SET switch of Receiver to match up the channel.</li></ol>
Channel can not fixed (manual mode)	<ol style="list-style-type: none"><li>1. Set the Manual/Auto switch to "manual".</li></ol>

When you need RMA or advanced technical service, please fill in this form as detailed as possible and FAX or Email to your dealer or service representative.

<b>Product S/N:</b>	
Name:	
TEL No.:	FAX No.:
E-mail address:	
Full Address:	
Problem description:	