

2.4 GHz Wireless Surveillance System

User Guide

WBM55A / WBM88A

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Safety Instructions

Thank you for choosing 2.4GHz Wireless Surveillance System. The manual is including the operation instructions for the product series of both **WBM55A** and **WBM88A**. Before operating, please make sure the following safety instructions are completely observed.

- Keep the transmitter, including the DC power adapter cord, out of reach of babies & children.
- To prevent entanglement, do not set the transmitter in a crib or playpen.
- The 2.4GHz Wireless Surveillance System should be operated under dry and ventilate condition.
- Keep the set away from humid environment such as bathroom, kitchen, or wet basement, etc.
- Do not expose the whole set to direct sunlight.
- Disconnect the DC power adapters from wall outlets during long periods of non-use.
- Do not install the transmitter, receiver and DC power adapters near any heat sources, such as; radiators, heat registers, stoves or other apparatus that produce heat.
- Use the DC power adapters provided only. Use of any others may damage the transmitter and / or receiver.
- Plug into an electrical outlet with standard household power (120VAC or 230VAC outlet).
- Changes or modifications not approved by qualified technician could void user's authority to operate the equipment.
- Please take note that 2.4GHz, which the Wireless Surveillance System used, is public channel. The sound and / or video signal may be broadcast to other 2.4GHz receiving devices. To protect your own privacy, always turn the transmitter off when not in use.

Package Description

Before installation, please check the following elements are in the package.

 ① Transmitter ■ WBM55A-TX (B/W camera, 100Kpix) ■ WBM88A-TXB (B/W camera, 150Kpix) ■ WBM88A-TXC (color camera, 250Kpix)	 ② Receiver (Receiving Monitor) ■ WBM55A-RX (w/o Auto Scan) ■ WBM55A-RXA (w/ Auto Scan)	 ③ Receiver (Receiving Box) ■ WBM88A-RX (w/o Auto Scan) ■ WBM88A-RXA (w/ Auto Scan)
 ④ 9VDC power adapter ■ One pc for transmitter in WBM55A ■ One pc for each of transmitter and receiver in WBM88A	 ⑤ 13.5VDC power adapter ■ One pc for receiver in WBM55A	
 ⑥ Wall-Mount-Bracket with screw ■ One pc for transmitter in WBM55A & WBM88A	 ⑦ Battery Pack (Optional) ■ One pc optional for receiver in WBM55A	
 ⑧ A/V Cable, RCA-to-RCA ■ One pc for receiver in WBM88A with FCC standard	 ⑨ A/V Cable, RCA-to-SCART ■ One pc for receiver in WBM88A with CE standard	

NOTES:

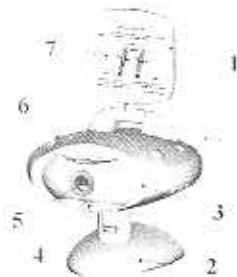
1. The whole set of **WBM55A** includes two DC power adapters, which cannot be interchangeably. The adapter labeled OUTPUT: 9VDC is used for the transmitter, and another labeled OUTPUT: 13.5VDC is used for the receiver.
2. The whole set of **WBM88A** includes two DC power adapters, which can be interchangeably. The adapter labeled OUTPUT: 9VDC is used for both of the transmitter and the receiver.

Illustration of 2.4GHz Wireless Surveillance System

Transmitter (Camera)

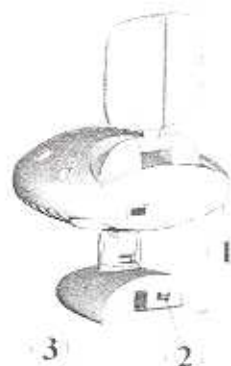
Model No. **WBM55A-TX**, **WBM88A-TXB** and **WBM88A-TXC**

⇒ Front View



- ① **Antenna:** See Page 12. (Orienting Antennas for Optimal Performance)
- ② **Mobile Case:** The transmitter can be mounted on the wall-mount-bracket or can be placed in horizontal position, such as: table, dresser or shelf.
Note: The bracket cannot rotate freely 360 degrees.
- ③ **Microphone:** For picking up clear audio.
- ④ **Night Vision LEDs:** It allows you to observe the object even in the darkened room..
Note: The transmitter **WBM88A-TXC** does not support Night Vision function.
CAUTION! The signal displayed on the monitor may look "snowy" when the transmitter is operating in the darkness or very low levels of light.
- ⑤ **Adjustable Camera Lens:** For focus adjustment.
- ⑥ **LED Indicator:** Switching on transmitter, LED will be lightened simultaneously.
- ⑦ **Warning Label:** Antenna direction Guide.

⇒ Rear View



① [CHANNEL 1 2 3 4]: It is used to prevent the signal interferences from other transmitters on the receiver. Make sure the transmitter and receiver are set to the same channel number.

Note: If more than one transmitter is installed. Please refer to Page 13, (Auto-Scan function)

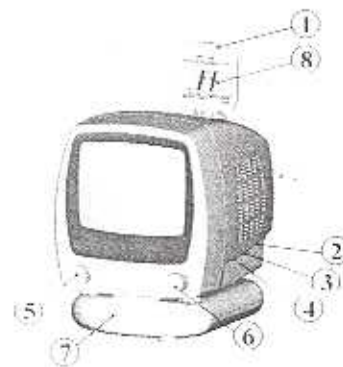
② [ON / OFF]: Power on/Power off.

③ [9VDC IN]: For connecting 9VDC power adapter.

Receiver (Receiving Monitor)

Model No. WBM55A-RX and WBM55A-RXA

⇒ Front View



① **Antenna:** See Page 12, (Orienting Antennas for Optimal Performance).

② **[V-Hold]:** For vertical synchronous signal adjustment.

③ **[Contrast]:** For contrast adjustment.

④ **[Brightness]:** For brightness adjustment.

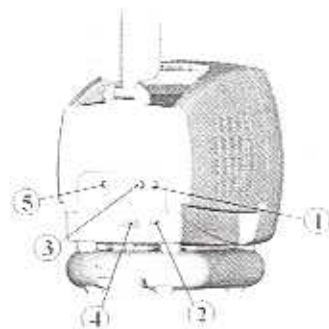
⑤ **[Volume/Power] Knob:** For monitor power On/Off, and audio volume adjustment.

⑥ **[Audio Only/Normal] Knob:** Normal mode (video & audio) or audio only selection.

⑦ **Battery Pack:** For supplying monitor's power when disconnected with AC power.
See Page 10 (Optional Accessory).

⑧ **Important Notice Label:** Antenna direction guide.

⇒ Rear View



① [Audio Output]: See Page 14 (A/V function).

② [CH. 1 2 3 4]: It is used to prevent the signal interferences from other transmitters on the receiver. Make sure the transmitter and receiver are set to the same channel number.

Note: If more than one transmitter is installed, please refer to Page 13. (Auto-Scan function)

③ [Video Output]: See Page 14 (A/V function).

④ [Function]: For more channels selection and Auto-Scan function. See Page 13 (Auto-Scan function).

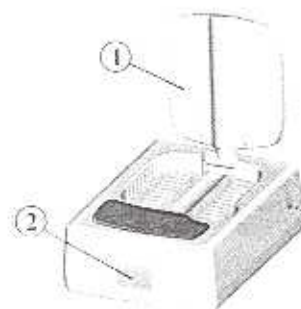
Note: The function is **NOT** available in **WBM55A-RX**.

⑤ [DC 13.5V]: For connecting 13.5V DC power adapter or battery pack.

Receiver (Receiving Box)

Model No. WBM88A-RX and WBM88A-RXA

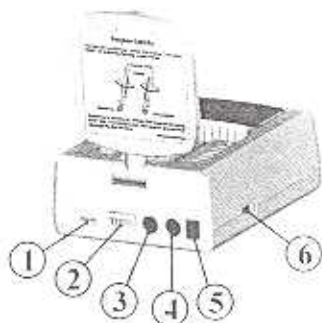
⇒ Front View



① [Antenna]: See Page 12. (Orienting Antennas for Optimal Performance).

② LED Indicator: Switching on the receiver, the LED will be lightened simultaneously

⇒ Rear View



① [CHANNEL 1 2 3 4]: It is use to prevent the signal interferences from other transmitters on the receiver. Make sure the transmitter and receiver are set to the same channel number.

Note: If more than one transmitter is installed. Please refer to Page 13. (Auto-Scan function)

② [Function]: For more channels selection and Auto-Scan function. See Page 13 (Auto-Scan function).

Note: The function is **NOT** available in **WBM88A-RX**.

③ [AUDIO OUTPUT]: See Page 14 (A/V Function).

④ [VIDEO OUTPUT]: See Page 14 (A/V Function).

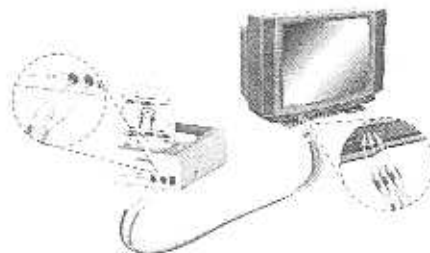
⑤ [9VDC IN]: For connecting 9VDC power adapter.

⑥ [ON / OFF]: Power on/Power off.

Packaged Accessory Installation

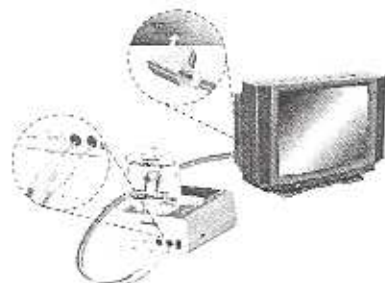
⇒ A/V Cable RCA-to-RCA

■ One pc for receiver in **WBM88A** with FCC standard

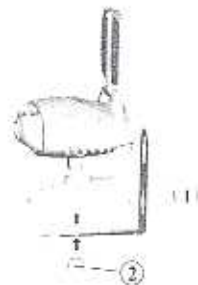


⇒ A/V Cable RCA-to-SCART

■ One pc for receiver in **WBM88A** with CE standard



⇒ Wall-Mount-Bracket



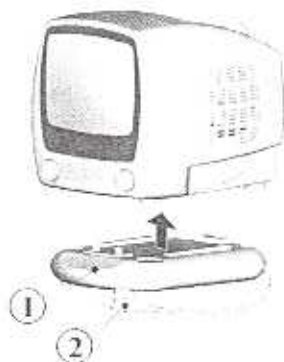
① **Bracket:**

Mounting the transmitter on the wall to provide wider viewing angle.

② **Screw:** Connecting transmitter and bracket.

Optional Accessory Installation

⇒ Battery Pack (only for WBM55A-RX and WBM55A-RXA)



① Battery Case:

Put 10 pcs of Size C (UM-2) battery into the battery case and make sure the polarity of each battery is connected correctly.

② DC Jack:

Connect the jack to the DC 13.5V input of **WBM55A-RX** or **WBM55A-RXA** (See Page 6 item ⑤).

Setting up 2.4GHz Wireless Surveillance System

It is necessary to check the communication before installing the transmitter on the wall. One holds the transmitter against the wall at the selected place and another moves the receiving monitor to different locations to check the quality of sensitivity. If there is any interference or other problems arisen, please refer to "Problems & Solutions" on Page 15.

Setting up 2.4GHz Wireless Surveillance System and follow the instructions below:

1. Make sure transmitter and receiver are set to the same channel number. (1, 2, 3 or 4)
2. Connect the power unit of the transmitter.
3. Power on the transmitter, the LED indicator will be lightened simultaneously.
4. Adjust the angle and focus of the transmitter to optimum. Point the microphone pick-up directly toward the object.
5. Position the antenna to point to the ceiling.
6. Connect the power unit of the receiver.
7. Power on the receiver:

WBM55A-RX/RXA ⇒ Switching on the power and set to "normal" (Set to "Audio Only" if you don't need video display).

WBM88A-RX/RXA ⇒ To slide on the power, and also switch on the power of TV or VCR or Computer which receiver connected with.

8. Adjust the volume to acceptable level on **WBM55A-RX/RXA**, or the volume of TV or VCR or Computer that **WBM88A-RX/RXA** connected with.
9. Adjust the receiver video signal on by revolving the knob of the V-Hold, Contrast and Brightness switches on the side of the **WBM55A-RX/RXA**; for **WBM88A**, the video signal can be adjusted on TV or Computer that **WBM88A-RX/RXA** connected with.
10. Set the antennas on both of transmitter and receiver in accordance with "Orienting Antennas" (See Page 12).

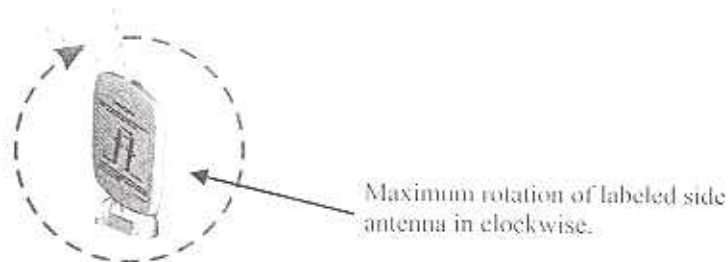
Note: If more than one transmitter are installed, please refer to Page 13 (Auto-scan function).

Orienting Antennas

2.4GHz Wireless Surveillance System carries high quality signals via directional antennas, which must be arranged in certain configurations for the best performance. The antennas have been designed to revolve but have limit either clockwise or counterclockwise.

Important: Rotate the antennas and keep the same "Labeled Side" of antenna facing each other between transmitter and receiver.

Antenna is unable to rotate 360 degree passing over the resisting point will cause permanent damage to the device.



The "labeled side" of the A/V antennas on both transmitter and receiver should be facing each other in common use. Since all rooms are not located in the same direction, additional slight pivots or rotations may be necessary for optimal reception. If the transmitter and receiver are less than 10 feet apart, keep the housing of the antennas on flat.

Auto-Scan Function

2.4GHz Wireless Surveillance System allows the user to monitor different locations for maximum supervision of the house (or office). The transmitting & receiving ends of 2.4GHz Wireless Surveillance System can use four different frequencies in four different channels and display them alternately. The whole set includes six dipswitches for various operating modes as per described below.

	1	2	3	4	4/8	4/B
OFF						
ON						

Preset mode- Receiving Monitor WBM55A-RXA

	4/B	4/8	1	2	3	4
ON						
OFF						

Preset mode- Receiving Box WBM88A-RXA

[4/B]: Auto-Scan Function.

Note: The function is **NOT** available in **WBM55A-RX** and **WBM88A-RX**.

ON: Disable Auto-scan function. All channel switches must be set to "OFF".

Note: As long as one of the channel switches remains "ON", the auto-scan function will keep working even [4/B] is "ON".

CAUTION! When more than one transmitter is installed, [4/B] MUST be set to position "OFF".

OFF: Enable Auto-scan function when [4/B] set to "OFF", and the function of [CH. 1 2 3 4] (Page 6 item ⑦) or [CHANNEL. 1 2 3 4] (Page 8 item ⑦) will be disabled.

[4/8]: Scan Interval Timer.

ON: Display received signal of each channel at interval of eight (8) seconds.

OFF: Display received signal of each channel at interval of four (4) seconds.

[1]~[4] Channel Switch: Setting up the channel for Auto-Scan Function.

When activating auto-scan function, the user must set the desired auto-scan channels to position "ON" according to the transmitter's channel setting and the undesired auto-scan channel to position "OFF".

Example: User installs 2 different transmitters, which channels are set on CH 1 and CH 3; and the received signals of CH 1 and CH 3 must be displayed on receiver's screen at interval of four (4) seconds.

To use the auto-scan function:

Follow the below instructions to set dipswitch of [Function] on the rear side of receiver:

1. Set [4/B] to position "OFF".
2. Set channel number switches of [1] (CH 1) and [3] (CH 3) to position "ON".
3. Set [4/8] to position "OFF" (if "ON", then the interval time will become 8 seconds).

	1	2	3	4	4/8	4/B
OFF						
ON						

Preset mode- Receiving Monitor WBM55A-RXA

	4/B	4/8	1	2	3	4
ON						
OFF						

Preset mode- Receiving Box WBM88A-RXA

To stop the auto-scan function:

Please follow the instructions below:

1. Set the [4/B] to position "ON" to activate the function of [CH. 1 2 3 4] (Page 6 item ②) or [CHANNEL 1 2 3 4] (Page 8 item ①).
2. Set all channels of [1] ~ [4] to position "OFF". And then set [CH. 1 2 3 4] or [CHANNEL 1 2 3 4] of the receiver according to the setting of [CHANNEL 1 2 3 4] on the rear side of the transmitter which audio/video signal wants to be received by the receiver.

A/V Function

The 2.4GHz Wireless Surveillance System allows the user to connect audio/video output from the rear side of the receiver to audio/video input of below equipments.

- **TV:** For larger screen display.
- **VCR:** For Audio/video signal record.
- **Computer:** Display on computer's monitor for other functions purpose.

Note: Computer must have video capture card in.

Problems & Solutions

Problems	Check Points	Solution
No picture only	Is the knob of "Normal/Audio only" on position "Audio only"? (only for WBM55A-RX/RXA)	Switch to the position "Normal".
No power is supplied to the transmitter or receiver	Is the power cord disconnected?	Connect it.
	Is the power switch of transmitter and receiver on position "ON"?	For WBM55A: - Switch on the power of WBM55A-RX/RXA, or slide on the switch of WBM55A-TX. For WBM88A: - Slide on the switch of WBM88A-RX/RXA or WBM88A-TXB or WBM88A-TXC.
	Does DC power adapter be installed correctly?	For WBM55A: - Labeled "OUTPUT: 9V" is used for WBM55A-TX; "OUTPUT: 13.5V" is used for WBM55A-RX/RXA. For WBM88A: - Labeled "OUTPUT: 9V" is used for WBM88A-RX/RXA, WBM88A-TXB and WBM88A-TXC individually.
No sound or picture. Noisy sound or picture	Incorrect channel setting between transmitter and receiver.	Set the transmitter and the receiver to same channel number.
	Interfered by microwave oven.	- Turn off the power of microwave oven. - Remove microwave oven away from the communication path between transmitter and receiver.
	- Signal interference. - Interfered by the signal generated by other devices.	- Change the channel setting on both transmitter and the receiver. - Identify and eliminate the source of interference. - Relocate the transmitter and/or receiver.
	- Out of range. - Improper antenna position.	- Relocate the transmitter and/or receiver. - Adjust transmitter/receiver antenna orientation.

Specifications

Receiver (Receiving Monitor & Receiving Box)

Rx Model No.	WRM55A-RX/RXA	WRM88A-RX/RXA	WRM55A-RX/RXA	WRM88A-RX/RXA	
Video System	NTSC		PAL		
Receiving Frequency	2.4GHz ~ 2.4835 GHz				
Max. Range (clear line of sight)	300 feet (FCC)		750 feet (CE)		
Receiving Antenna	Directional				
Receiving Sensitivity	25 ~ -90 dBm				
Sound					
Audio only selectable					
Audio & video output	1 x video, 1 x audio				
Max. Output	800 mW	N/A	800 mW	N/A	
Thd output 10%	500 mW	N/A	500 mW	N/A	
Picture					
Hor. Pull-In	V	200 Hz	N/A	200 Hz	N/A
	H	200 Hz		200 Hz	
Hor. Hold	V	400 Hz		400 Hz	
	H	400 Hz		400 Hz	
Vert. Range		6 Hz		6 Hz	
Linearity	V	15%		15%	
	H	15%		15%	
Pincushion	V	3%		3%	
	H	3%		3%	
Barrel Dist	V	3%		3%	
	H	3%		3%	
Keystone Dist		3%		3%	
Scan Redisplay Rate	V	90%		90%	
	H	90%		90%	
Resolution at Center	V	250 Lines		250 Lines	
	H	300 Lines		300 Lines	
Luminance Max		100 cd / m ²		100 cd / m ²	
Normal Current Consumption		1000 mA	300 mA	1000 mA	300 mA
Audio only Current Consumption		500 mA	N/A	500 mA	N/A
Power Supply		DC 13.5V	DC 9.0V	DC 13.5V	DC 9.0V
Battery Pack		Size C(UM-2) battery 10 pcs (only for WBM55A-RX)			

Transmitter (Camera)

TX Model No.	WBM55A -TX	WBM88A -TXB	WBM88A -TxC	WBM55A -TX	WBM88A -TXB	WBM88A -TxC
Video System	NTSC			PAL		
Transmitting Frequency	2.4 GHz ~ 2.4835 GHz					
Max. Range (clear line of sight)	300 feet (FCC)			750 feet (CE)		
Transmitting Antenna	Directional					
Transmitting Power	0 dBm FCC			10 dBm CE		
Picture of Color	B/W		Color	B/W		Color
Image Sensor (CMOS)	1/4"	1/3"		1/4"	1/3"	
Number of Effective Pixels	320 x 240	510 x 492		352 x 288	628 x 582	
Scanning System	2:1 interlace					
Resolution (TV line)	240 (h)	420 (h)		240 (h)	420 (h)	
Auto Exposure (sec.)	1/60-1/6000	1/60-1/15000		1/60-1/6000	1/60-1/15000	
Gamma Correction	auto					
Backlight Compensation	auto					
Indoor/Outdoor	Indoor only					
Night-Vision distance	1-2 meters	2-3 meters	N/A	1-2 meters	2-3 meters	N/A
MTI Sensitivity	2 to 1 meters					
White Balance	auto					
Number of Channels	4					
Current Consumption	300 mA					
Power Supply	DC 9.0V					